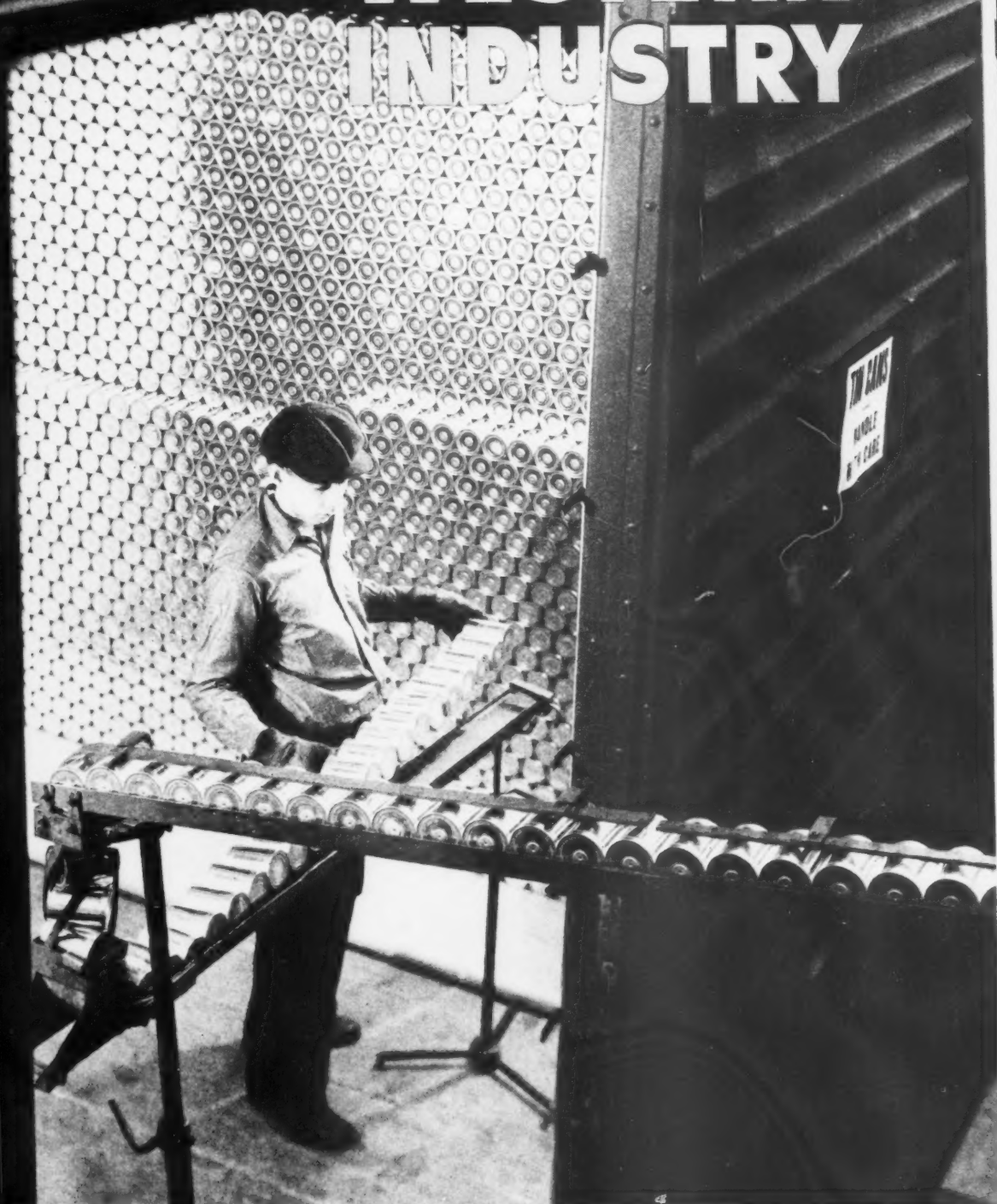


# WESTERN INDUSTRY



\* Fruits, vegetables and other Western products reach the world markets via cans like these. For details see Page 5.

**IN THIS ISSUE:** Sales Budget Committee Makes Costs Fit Expected Income; Busy Machine Shop Flouts Waste Away; How Shell Chemical Avoids Loss-in-Transit Claims; Plomb Tool Uses Compressed Air; Use of Ceramic Tile; Gang Cutters Speed Milling; Advertising Is a Vital Part of Marketing

**Forty-Five Cents**

**VOLUME XIII**

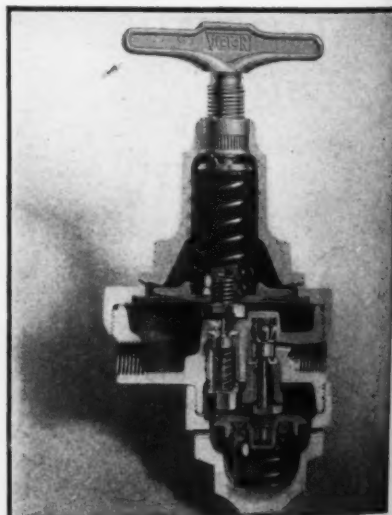
**NUMBER 7**

**August, 1948**



*Made by* ..... **VICTOR**

proper control of gas pressures safeguards gas or compressed air operated tools and, when welding or cutting torches are involved, fine pressure reducing regulators conserve gases and safeguard operators. single or two-stage reduction regulators for all types of cylinder gases or cylinder manifolds . . . for very small or very large hourly gas volume . . . are made by victor . . . and it's more than a slogan that victor welding and cutting equipment costs less to own and to operate. victor equipment company, san francisco 7, calif.



what's under the hood is what makes the automobile go . . . what's inside of a regulator determines its true value.

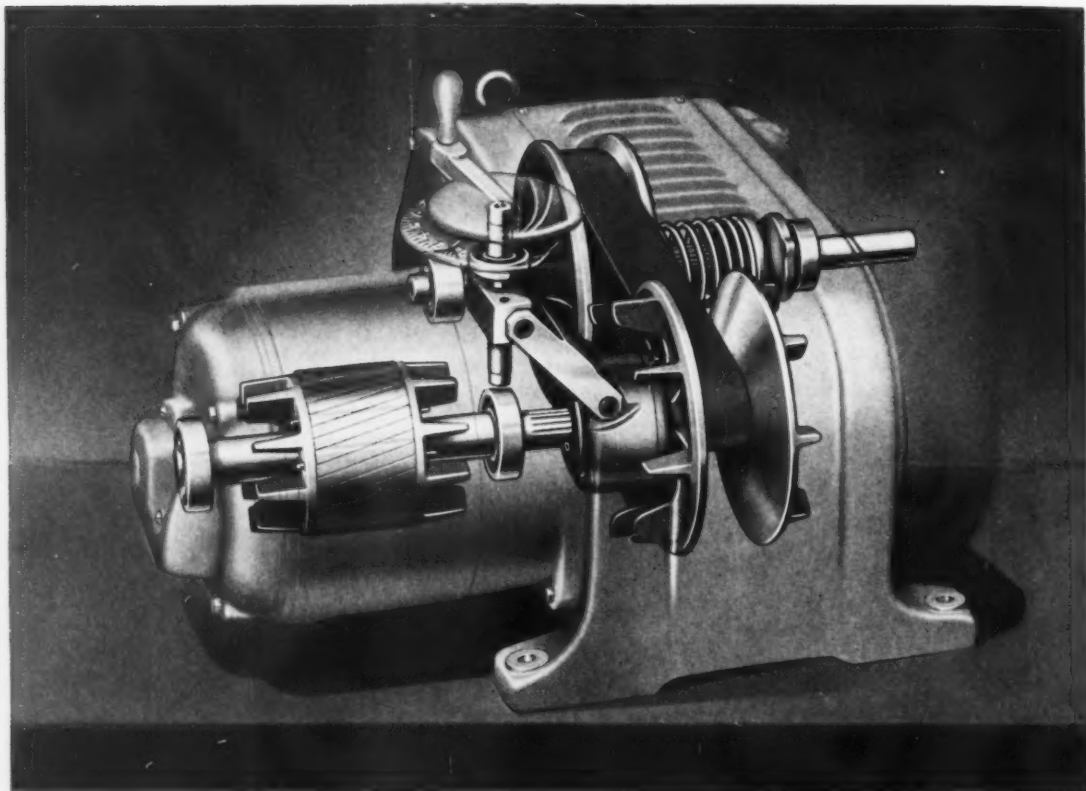
THOUSANDS OF SPEEDS - AT THE TOUCH OF YOUR HAND



**U.S.**  
**VARIDRIVE**  
**MOTORS**

At the command  of your hand

**ANY SPEED—ANY TIME—WITH ANY LOAD**



## U. S. VARIDRIVE MOTOR

Modern equipment is increasingly required to operate under exacting conditions. Factors contributing to efficiency of production are of prime importance. To obtain *highest* productivity, your machines must be speeded up or slowed down to the exact *rpm* best suited for the work and the operator. Fixed speeds no longer can be depended upon for any and all work. *Variable speed is the answer.* With the *new* U.S. Varidrive motor you obtain *any* speed instantly. It is a *compact* unit as easily installed as an ordinary motor. 1 to 10,000 *rpm*.

*Please request illustrated Bulletin*

### The QUALITY LINE of Power

VARIDRIVE MOTORS . . . . . for infinite speeds  
 SYNCROGEAR MOTORS . . . . . for multiplied power  
 VERTICLOSED MOTORS . . . . . for deep well pumping  
 UNICLOSED MOTORS . . . . . Horizontal and Vertical  
 UNIMOUNT MOTORS . . . . . Horizontal and Vertical  
 TOTALLY-ENCLOSED MOTORS . . . . . for hazardous services

AUTOSTART Buffers

### U.S. ELECTRICAL MOTORS Inc.

ATLANTIC PLANT: MILFORD, CONN. • PACIFIC PLANT: LOS ANGELES 54, CALIF.  
 District Offices: Boston 16, New York 6, Philadelphia 2,  
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—embody

ASBESTOS PROTECTION  
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 LUBRIFLUSH LUBRICATION

STREAMLINE DESIGN • WEATHERPROOF HOUSING  
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# This Month in WESTERN INDUSTRY

VOLUME XIII

AUGUST, 1948

NO. 8

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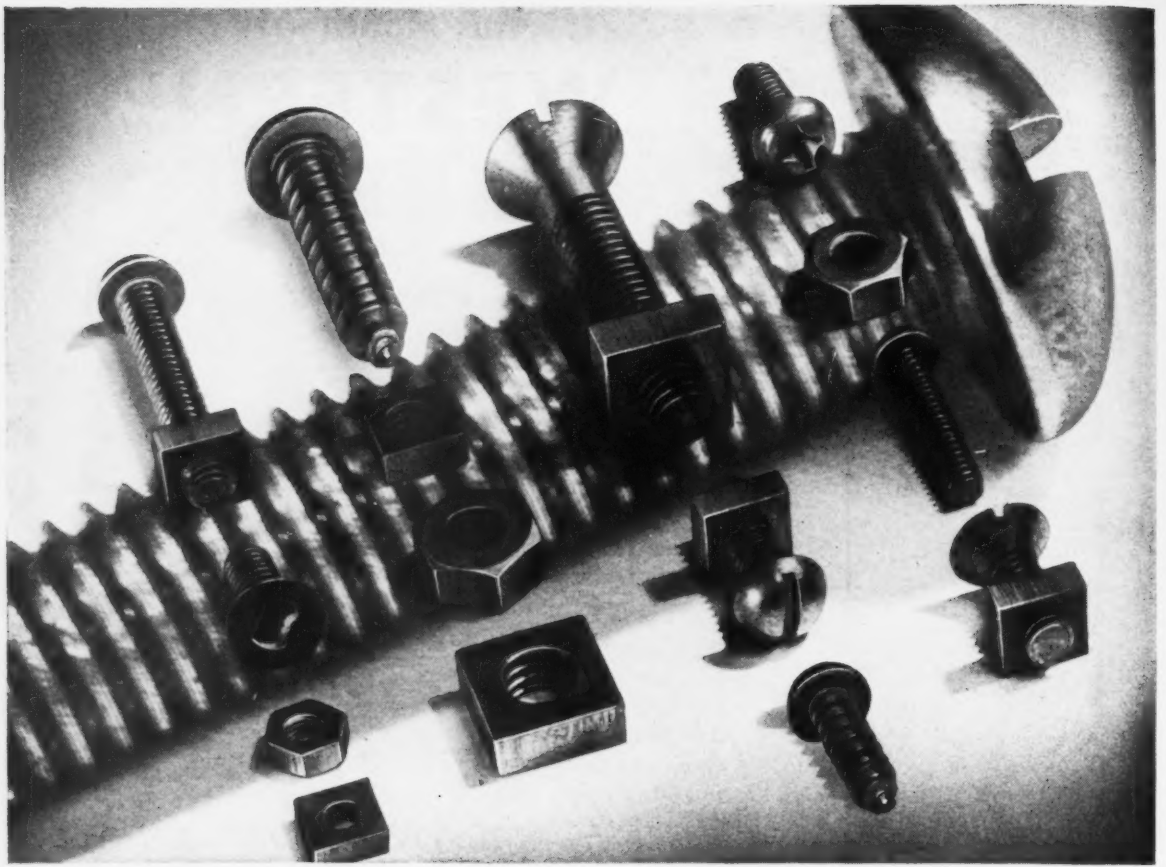
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## Front Cover

An apparently endless stream of cans must flow into freight cars from plants like that of American Can Company, where this picture was made, to fill demands of Western food packers, oil refiners and others who package their products in such containers. Paper-lined car holds 90,000 cans.



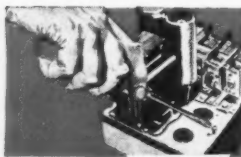
IT'S "t.f.e."

## TO CUT THE MAJOR COSTS OF FASTENING

The *major* costs are time and labor. A *minor* cost is initial price.

When you give a man a fastener he can handle with confidence and ease . . . because the dimensions are accurate and uniform, the threads sharp and clean, the heads strong . . . you are saving money. Far more money than you could save through a lower price.

Each time your worker picks up an RB&W bolt, nut, screw or rivet . . . you benefit, cost-wise, from RB&W's know-how, acquired through 103 years of pioneering . . . and from the tremendous investments RB&W has made in modern plants, modern machinery, modern quality control practices.



**WORKERS LIKE** dependable fasteners headed, threaded and finished to RB&W's quality standards which insure accurate, uniform dimensions; clean, smooth surfaces.



**ASSEMBLY SPEED** depends on fastener accuracy, obtainable only by controlling raw material. RB&W draws its own wire, using tungsten carbide dies for closest tolerances.



**QUALITY CONTROL**, with RB&W, is built around proper preparation of materials and equipment. Our constant check, plus conscientious inspection, reduces your inspection.

**t.f.e. TRUE FASTENER ECONOMY**  
IS THE LOWEST TOTAL OF ALL  
FASTENING COSTS

Send for new booklet on the 8 ways to cut fastening costs. Ask for "The ABC's of T.F.E."

**RUSSELL, BURDSALL & WARD**  
**BOLT AND NUT COMPANY**



Plants at: Port Chester, N. Y., Corapolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices at: Philadelphia, Detroit, Chicago, Chattanooga, Oakland, Portland, Seattle. Distributors from coast to coast.

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*Call your nearest CHASE WAREHOUSE for anything in Brass, Copper or Bronze! . . .*

Why take the long way around when you're looking for copper-alloy mill products?

Take the short road!

Any one of 22 Chase warehouses from coast to coast is at your service, ready to supply you with brass and copper sheet, rod, wire and tube. (Plus

a great variety of miscellaneous items, from copper hammers to nails.)

Your local Chase warehouse will fill regular orders immediately...and can also arrange for prompt delivery of your *big* orders from the mills.

*Act now!* Chase service is as close as your phone.

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*the Nation's Headquarters for*  
**BRASS & COPPER**

WATERBURY 91, CONNECTICUT      SUBSIDIARY OF KENNECOTT COPPER CORPORATION

**THIS IS THE CHASE NETWORK . . . handiest way to buy brass**

ALBANY ATLANTA BALTIMORE BOSTON CHICAGO CINCINNATI CLEVELAND DETROIT HOUSTON INDIANAPOLIS KANSAS CITY, MO. LOS ANGELES MILWAUKEE MINNEAPOLIS  
NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTER SAN FRANCISCO SEATTLE ST. LOUIS WATERBURY (Indicates Sales Office Only)

# 3

## FABRICATING WORKS

### aiding Western Construction

Highly important to the Western Construction Industry are the three Bethlehem Pacific steel fabricating works at Los Angeles, Alameda, and South San Francisco.

All three have been operating at capacity to keep pace with the postwar demands of commerce and industry in the nation's fastest growing area. Last year Bethlehem Pacific fabricated thousands of tons of steel that went into new buildings, bridges, towers, pipelines and other structures.

In addition to these facilities, Bethlehem Pacific also maintains erection crews and erection equipment to handle steel construction on any scale, in any locality.

This is another of the many ways Bethlehem Pacific is meeting the rapidly increasing steel requirements of the West. The company is also actively engaged in the manufacture and conversion of steel in a wide variety of basic forms for use by Western industries.

**BETHLEHEM PACIFIC COAST STEEL CORPORATION**  
Sales Offices: San Francisco, Los Angeles, Portland, Seattle, Honolulu

# BETHLEHEM PACIFIC

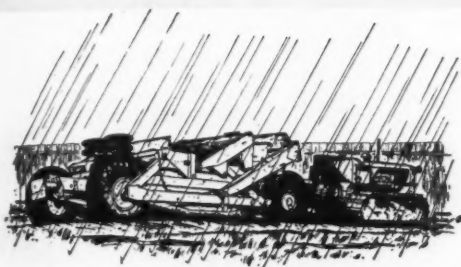


Developed by Shell scientists...

# SHELL ENSIS

## RUST PREVENTIVES

to keep your equipment ready  
to go when you need it



### Ever figure how much rust costs you?

Equipment out of commission... expensive overhauls... high-paid crews standing by. These are just some of the ways rust can slow the progress of a job... and elevate costs. Shell engineers figured it up, too... saw the need to offset rust damage *when it occurred most*—during lay-up time. Shell Ensic Rust Preventives were the result.

### Shell Ensic Rust Preventives stop corrosion

Yes, they actually stop rust by coating all metal surfaces with a tough film that keeps out air and moisture. And it stays on heavy equipment, tools, air drills, exposed gears, bearings and other machinery—even through months of

outdoor storage. To prevent engine rust, try using a 400-series Shell Ensic Oil. These oils are completely soluble in lubricating oil... need only be drained and replaced with regular oil when unit goes back into service.



### They're low-cost and easy to apply

Compared to the cost of cleaning rust off your equipment, Shell Ensic Rust Preventives come mighty reasonable. And no trouble at all to use. For external surfaces, you simply apply by dipping,

spraying or brushing. For engine interiors, replace regular oil with Shell Ensic Oil 401 or 402 and run engine to coat all moving parts. Result: rust-free equipment... ready to go *when you need it*.



SEE YOUR SHELL REPRESENTATIVE FOR THIS IMPORTANT  
PROTECTION DURING THE LAY-UP SEASON



# Extensive Manufacturing Facilities



Here at Torrance, California, under the direct supervision of a single organization, you'll find the largest completely integrated machinery manufacturing plant in the West.

Here you can get National's own IDEAL Electric Carbon and Alloy Steels in a variety of types—including steels for dies, bearings, ordnance and aircraft parts—in press forged billets, large bars and open die forgings

up to 35,000 pounds. Extensive machining facilities are also available for your work, and a modern laboratory is at your disposal for chemical and physical testing, photomicrographic examination, etc.

Take advantage of the splendid facilities—right at your front door—to assure the high quality of your products. You'll be sure to like the fast, convenient service.

## THE NATIONAL SUPPLY COMPANY

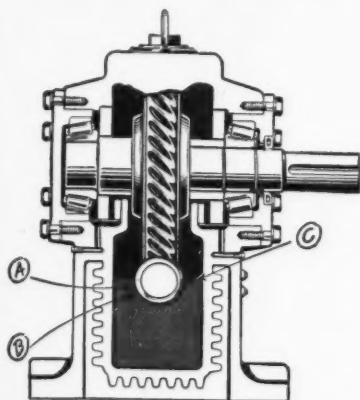
TORRANCE, CALIFORNIA • LOS ANGELES AREA

Ideal Pressed Steel Forgings, Billets and Large Bars Are Distributed by  
**C. B. S. STEEL AND FORGE**  
3221 E. Slauson Ave., Los Angeles 11, California, Phone LAfayette 0147

## STANDARD ENGINEER'S CASE FILE



### CASE 1043—MINIMIZING LEAKAGE IN LARGE ENCLOSED GEAR SETS.



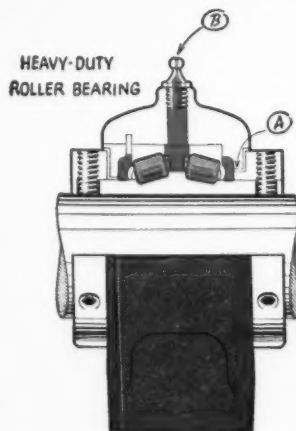
AIR-COOLED WORM GEAR SPEED REDUCER

In heavy-duty industrial enclosed reduction gears the relatively high viscosity characteristics of Calol Gear Compound cut consumption. Efficient in both conventional and worm types and where such gears carry extra loads or are worn. Comes in eight grades: 60, 100, 120, 135, 150, 190, 225 and 410.

- A. Oiliness and extreme pressure additives cushion shocks, prevent vibration, welding and extra wear.
- B. Non-corrosive - will not harm bearing or gear metals.
- C. Contains effective foam inhibitor - breaks bubbles that form and stops building up of pressure in case.

Calol Gear Compound resists high temperatures and retains good body in all operating conditions. Its numerous viscosity grades make it adaptable to a wide range of applications and conditions.

### CASE 1065—SECURING POSITIVE BEARING LUBRICATION IN HIGH RADIATED TEMPERATURES.



Calol S. A. Grease stopped leakage and drippage trouble in a large roller bearing even when bearing temperature, due to radiated heat, reached 250°F. and over. Originally developed for heavy-duty anti-friction bearings, but adaptable to many industrial grease-lubrication services where high ambient temperatures exist. Comes in three grades: No. 00, No. 0 and No. 1.

Has sodium-aluminum soap base - feeds evenly through bearings ... oil stock selected for high heat-resistant qualities.

- A. Minimizes seepage through housings and seals.
- B. Resists cold temperatures - pumpability remains good in all weather.

Calol S.A. Grease has proved excellent for low-, medium-, and high-speed anti-friction bearings. It is packed in 35-, 108- and 420-pound containers.

Trademarks, "Calol," "RPM," Reg. U. S. Pat. Off.

STANDARD TECHNICAL SERVICE will make your maintenance job easier. If you have a lubrication or fuel problem, your Standard Fuel and Lubricant Engineer or Representative will gladly give you expert help; or write Standard of California, 225 Bush Street, San Francisco 20, California.



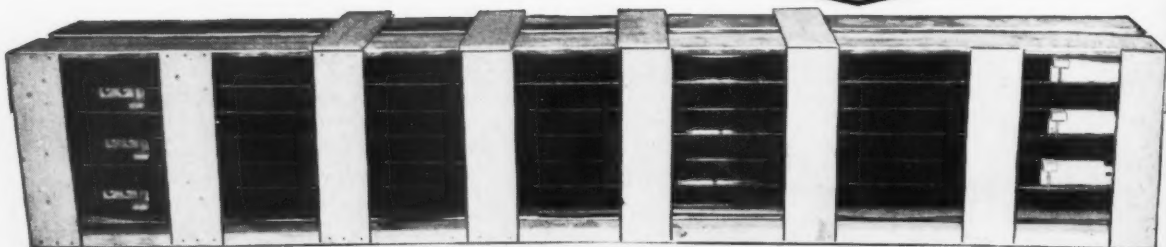
FOR EVERY NEED A **STANDARD OF CALIFORNIA** JOB-PROVED PRODUCT

# STEEL STRAPPING SAVES

## \$11,000 and 93 tons

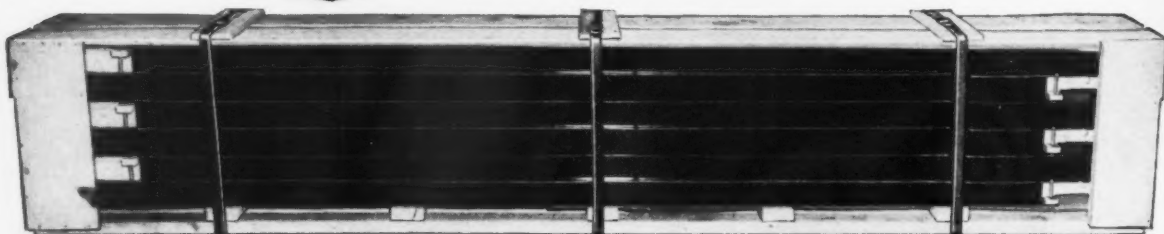
### of freight a year

**OLD METHOD**  
80 bd. ft. lumber, 1450 lbs.  
80 min. labor, 6576 cu. ft.



**NEW METHOD**  
55 bd. ft. lumber, 1414 lbs.  
50 min. labor, 5232 cu. ft.

**SAVINGS PER CRATE**  
Materials & labor ..... \$2.10  
Weight ..... 36 lbs.    Space ..... 1344 cu. ft.



Here's a typical case of the cost-savings you can make by switching to the Stanley Steel Strapping System. A manufacturer of electric products ships ducts in wooden crates. You can see the whole story in the two crates above... old and new.

Three steel straps do the job of 25 bd. ft. of lumber. The total saving in man-hours and materials amounts to 35¢ per duct which, at the rate of 100 ducts a day, gives an annual saving of close to \$11,000... plus freight savings on the lighter, less bulky crates of 93 tons a year.

No matter what you ship or how you ship... case, crate, carton or bale... the Stanley Steel Strapping System gives your shipments maximum protection at a minimum of shipping room and shipping route cost. The System includes tools such as the new improved Ace Strapping Tool, reels and accessories for every application.

Write today for full information. Demonstration on request. The Stanley Works, Steel Strapping Division, 234 Lake Street, New Britain, Connecticut.

West Coast Sales Offices:

108 W. 6th St., Los Angeles 14; 681 Market St., San Francisco 5; 618 2nd Ave.; Seattle 4.

**STANLEY**

HARDWARE • HAND TOOLS • ELECTRIC TOOLS

Reg. U.S. Pat. Off.

**STEEL STRAPPING AND CAR BANDING SYSTEMS**



factor is identical with plain enamel.

## WANTED: Tough Winding Jobs!

**FORMVAR**, available immediately for use where toughness counts. Stands up under hot and heavy operation. Inquire Anaconda Wire and Cable Company, New York or Chicago.

Formvar resists moisture and treating solvents  
such as petroleum naphtha and coal tar derivatives.

FORMVAR MAGNET WIRE, insulated with vinyl acetal resin varnish, is abrasion resistant. Under heavy winding tension it elongates to the breaking point of the copper wire without cracking or rupture of insulation. The Formvar film will not become brittle after prolonged exposure to high operating temperatures\*. Space factor is identical with plain enamel.

Formvar resists moisture and treating solvents such as petroleum naphtha and coal tar derivatives. In dielectric strength, it withstands 1000 volts per mil. (.001") of insulation. For complete detailed information on magnet wire and coils, write Anaconda Wire and Cable Company, 25 Broadway, New York 4, N. Y. or 20 N. Wacker Drive, Chicago 6, Illinois.

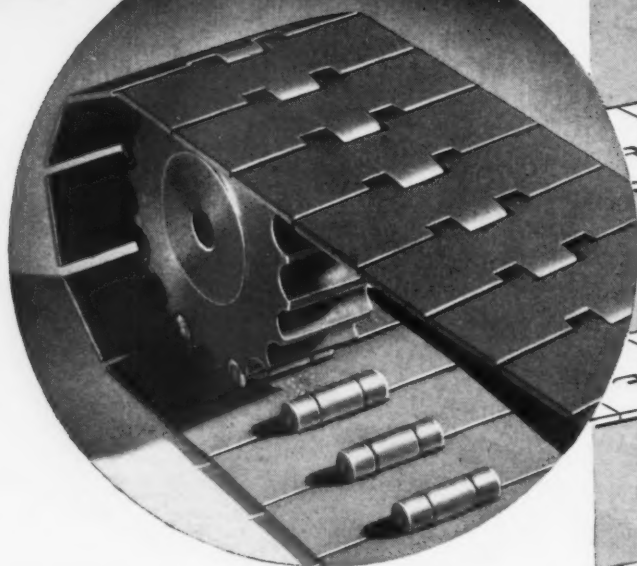
\*Based on AIEE temperature rating this is a class A material capable of withstanding a "Hottest-spot" temperature of 105°C which is a rise of 65°C over an ambient of 40°C.



LOOK TO **Anaconda** FOR ENGINEERED MAGNET WIRE AND COILS

August, 1948—WESTERN INDUSTRY

**For Conveying Small Containers, Packages and Parts..**



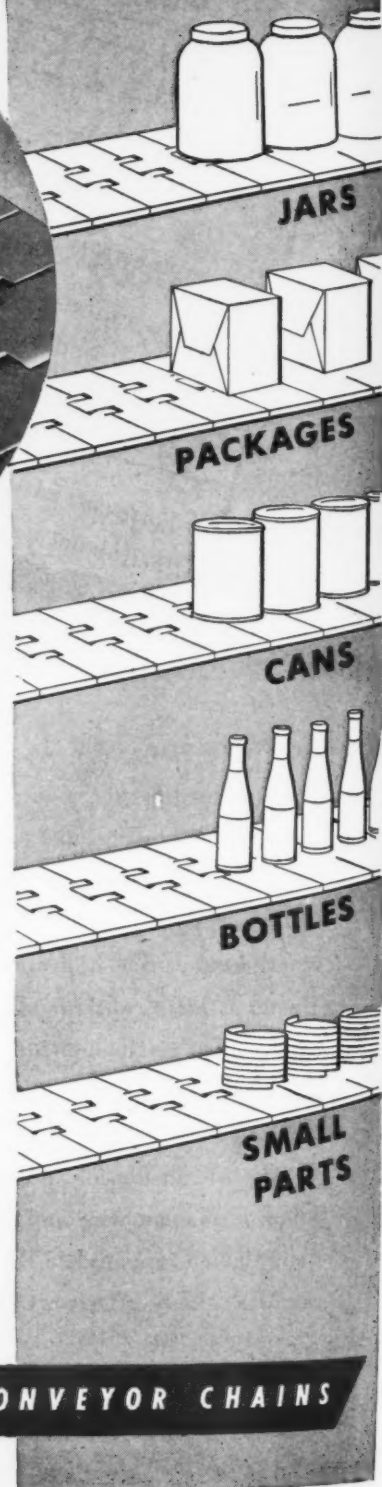
## TABLE TOP IS TOPS!

Small parts and packages . . . bottles, cans and jars, Rex Table Top offers the most efficient, economical and convenient method of materials handling.

Available in both stainless and case-hardened steel, Table Top is a natural for moving small parts through heat-treatment ovens and other processing steps. Its continuous carrying surface, provided by the exclusive interlocking hinged joint construction, assures smooth, steady, tip-free conveying for bottles and jars. There's no expensive breakage and spillage with Table Top on the job.

Rex Table Top Conveyor Chain is simplicity itself. A one-piece platform link and a pin are the only parts. There are no attachments to loosen or "wobble" . . . no pockets to catch and hold foreign material. Sprocket tooth bearing pressure is spread over the entire length of the joint . . . giving unusually wide bearing area. Pin is relieved of all load when flexing because each sprocket tooth contacts both leading and following links simultaneously. Table Top just has to last longer.

For all the facts, send for your copy of Bulletin No. 47-15. Chain Belt Company, 1723 West Bruce Street, Milwaukee 4, Wis.



... DRIVE AND CONVEYOR CHAINS

A new way to buy

## STEEL PRODUCTS



### Drake's Traveling Steel Catalog

Samples of Steel, Wire and Tubular products can now be brought to your door for your selection in Drake Steel's new mobile display. A Drake expert accompanies the display to assist you in filling your steel needs, take your order — and in many cases your purchases are delivered in 24 hours! Try this new time-saving, one-stop steel service.

*Ask for New Catalog*

## Drake Steel Supply Co.

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Fresno  
Phone 4-2806

10 W. Roosevelt St.  
Phoenix  
Phone 2-4851



Bakersfield: Phone 2-3935   Oakland: TWinoaks 3-6584   Stockton: Phone 7-7507

# TRAMRAIL CRANES SPEED PRODUCTION ... and **AID SAFETY**



**W**HEN adequate overhead crane equipment is provided there is no waiting for materials, no loss of time of either skilled men or costly machine-tools, for want of a lift. That means improved efficiency and greater production.

Workers are usually enthused when Cleveland Tramrail Cranes are installed, for it lightens their load. Instead of hard, often back-breaking lifts, their work is reduced to the mere pushing of buttons. Electric hoists and easy rolling carriers do

the heavy lifting and hauling.

Safety, too, is given a tremendous boost. Hernias, mashed fingers and toes and more serious accidents are greatly reduced or eliminated entirely.

There is little other industrial machinery that returns as large dividends and raises employees' good will as much for the amount invested as Cleveland Tramrail. It will pay you to learn why thousands of leading companies have installed this modern cost-reducing equipment.



#### GET THIS BOOK!

BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy.

**CLEVELAND TRAMRAIL DIVISION**  
THE CLEVELAND CRANE & ENGINEERING CO.  
8814 East 284th Street, Wickliffe, Ohio

**CLEVELAND**  **TRAMRAIL**  
**OVERHEAD MATERIALS HANDLING EQUIPMENT**



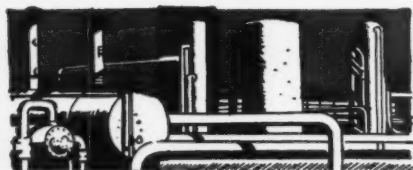
# T5X

**THE FAMOUS PURPLE OIL!**

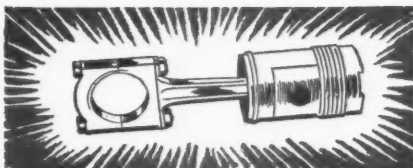
**Gives outstanding protection for  
ANY internal combustion engine!**

**T5X**—the sensational purple\* oil developed by Union Oil Company—gives outstanding protection and performance in *any* internal combustion engine in *any* industrial operation!

## HERE ARE THE REASONS FOR T5X SUPERIORITY:



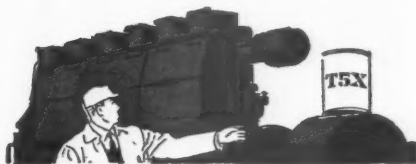
**1.** The base stock in T5X is 100% pure, paraffin-base oil — obtained from selected crudes by Union Oil's famous propane solvent process.



**2.** T5X contains an exclusive detergent compound that prevents sludge formation to a degree never before attained! Thus your engine stays clean far longer!



**3.** A special inhibitor in T5X greatly retards oil oxidation and gives the oil high stability against heat. A neutralizing agent protects against corrosion. And another ingredient suppresses foaming.



**4.** T5X forms an extremely tenacious and enduring oil film that gives maximum protection against scuffing and seizure. This tough film also protects metal surfaces against rust.

\*T5X gets its distinctive color from an exclusive ingredient that helps give the oil its remarkable stability.

For full information on T5X phone  
your local Union Oil Representative or write Sales Dept.,  
Union Oil Company, Los Angeles 14, California.

**76 UNION OIL COMPANY**  
OF CALIFORNIA

**HOW TO GET PROMPT DELIVERY ON SHEET METAL PRODUCTS:**

# YOU

## **FURNISH THE STEEL**

If you can supply us with 12 to 24 gauge sheet steel, we will buy the steel from you and ship the pound for pound equivalent in

### **EITHER**

—Lyon standard products—any selection of items in production at regular published prices (see partial list below)

### **OR**

—your own assemblies, subassemblies or parts, etc., for your product—to your specifications—in an even wider range of gauges—8 to 30.

# LYON

## **LYON METAL PRODUCTS, INCORPORATED**

General Offices, 840 Monroe Ave., Aurora, Ill.

Branches and Dealers in All Principal Cities

## **WILL MAKE THE PRODUCT**



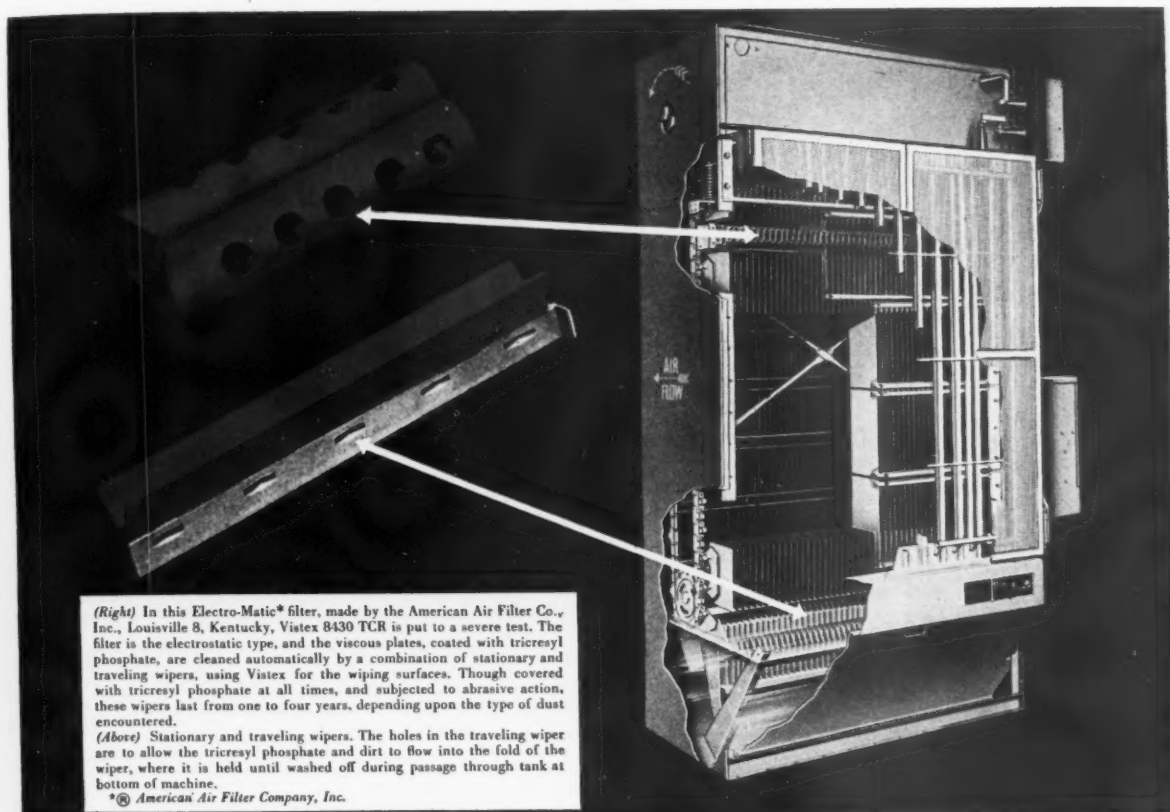
### **A PARTIAL LIST OF LYON PRODUCTS**

- |                        |                     |                   |                    |              |                 |                           |
|------------------------|---------------------|-------------------|--------------------|--------------|-----------------|---------------------------|
| • Shelving             | • Kitchen Cabinets  | • Filing Cabinets | • Storage Cabinets | • Conveyors  | • Tool Stands   | • Flat Drawer Files       |
| • Lockers              | • Display Equipment | • Cabinet Benches | • Bench Drawers    | • Shop Boxes | • Service Carts | • Tool Trays • Tool Boxes |
| • Wood Working Benches | • Hanging Cabinets  | • Folding Chairs  | • Work Benches     | • Bar Racks  | • Hopper Bins   | • Desks • Sorting Files   |
| • Economy Locker Racks | • Welding Benches   | • Drawing Tables  | • Drawer Units     | • Bin Units  | • Parts Cases   | • Stools • Ironing Tables |

## SEAL FOR TRICRESYL PHOSPHATE

# VISTEX

NEW TYPE OF PACKING, SEALING AND WIPING MATERIAL SUCCESSFULLY  
RESISTS ATTACK BY TRICRESYL PHOSPHATE.



(Right) In this Electro-Matic\* filter, made by the American Air Filter Co., Inc., Louisville 8, Kentucky, Vistex 8430 TCR is put to a severe test. The filter is the electrostatic type, and the viscous plates, coated with tricresyl phosphate, are cleaned automatically by a combination of stationary and traveling wipers, using Vistex for the wiping surfaces. Though covered with tricresyl phosphate at all times, and subjected to abrasive action, these wipers last from one to four years, depending upon the type of dust encountered.

(Above) Stationary and traveling wipers. The holes in the traveling wiper are to allow the tricresyl phosphate and dirt to flow into the fold of the wiper, where it is held until washed off during passage through tank at bottom of machine.

\*© American Air Filter Company, Inc.

**T**HE increasing use of tricresyl phosphate in hydraulic systems and in other applications has led American Felt Company to produce a special type of Vistex that is practically immune to attack by this fluid. Sufficient experience in actual use has convinced engineers that Vistex 8430 TCR, is the perfect solution to the leakage and maintenance problems heretofore encountered in systems employing tricresyl phosphate.

**What Vistex 8430 TCR is.** This material consists of high grade wool felt thoroughly impregnated with a special elastomer that is unaffected by tricresyl phosphate. The combination produces a material that is strong, tough, self-lubricating, highly resistant to wear, and unaffected by a wide range of conditions. Other standard types of Vistex were originated prior to the war to provide the high performance required of self-lubricating hydraulic shock absorber packings for automotive and military aircraft use.

**Uses of Vistex.** Packings, washers, heavy-duty bearing seals, gaskets, wipers—as in pumps, filters, die casting equipment, shock absorbers, valves, plungers, bearings, pistons.

**Qualities of Vistex.** It is strong, tough, highly resistant to wear and aging, self-lubricating, unaffected by a wide range of fluids and vapors that destroy other substances. Maximum operating temperature range, from  $-70^{\circ}$  F. to  $300^{\circ}$  F. Because of the strength and toughness of Vistex, parts made of it can be removed and replaced without injury during maintenance operations.

**How Furnished.** Vistex is supplied either in  $36" \times 48"$  sheets, or in the form of cut parts. Thickness, from  $1/32"$  to  $1/2"$ , standard tolerance plus or minus  $0.010"$ . Dimensions of cut parts are maintained within plus or minus  $0.005"$ . Vistex may also be molded to shape.

**Four Types.** There are four standard types of Vistex, impregnated respectively with Hycar, Neoprene, Buna S, and Natural Rubber. Other types, such as 8430 TCR, can be created for special purposes by selection of the proper impregnant.

Write for further information about this unusual material. Ask for Data Sheet No. 14.

**American Felt  
Company**  
TRADE MARK

PLANTS: Greenville, Conn.; Franklin, Mass.;  
Newburgh, N.Y.; Detroit, Mich.; Westerly, R.I.  
Pacific Coast Regional Sales Offices  
A. B. BOYD COMPANY  
San Francisco 3: 1235 Howard St.; Los Angeles 21: 763 E. 14th St.; Portland 14: 733  
S. E. Union Ave.; Seattle 9: 404 Dexter Ave.

Daniel Boone, Kentucky  
Frontiersman, escaping by  
throwing powdered tobacco  
into Indians' eyes.



## The Going was Really **TOUGH** Then!

Yes, and when the going gets tough on grinding jobs, experienced users find they get a quicker and better job with Bay State wheels.

There are definite reasons for this superiority.

1. Faster, cleaner, stock-removing action . . . thanks to Bay State's heat resistant bonds.
2. Closer "fit" of wheel to the job . . . a result of a more friable type of abrasive with "planned use" grit size combinations.
3. Longer wheel life . . . resulting from reduced operator pressure.
4. "Non-loading" wheels . . . through a Bay State special treatment process.
5. Extra safety . . . with patented Bay State molding of especially designed nut into tapered cup shapes.

Buy the best in grinding wheels...buy Bay State!

Branch offices & warehouses Chicago—Detroit  
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121 South Madison Street, Spokane, Washington



## BRIEFS FOR BUSY EXECUTIVES

### Administrator Delays Overtime Premium Pay

Enforcement of the recent Supreme Court decision relating to "overtime on overtime" which was to have begun on July 1, has been postponed until September 15, according to the announcement of the Wages & Hours Administrator.

Both labor and management needed more time to bring union agreements and employer practices into accord with the Court's findings, in the opinion of the Administrator, a bulletin of the Industrial Conference Board, Tacoma, stated. Washington members of the conference were advised that, while employers intend to modify their contracts to eliminate pay for Saturday as such in weeks where the employee has already worked forty hours or more, the Administrator's delay of enforcement indicates that there is no need at present for making any change in payment of overtime.

### Selective Service Act Creates Priority System

Small industrial plants will receive a fair share of contracts for goods supplied for the exclusive use of the armed forces or other federal agencies, according to certain provisions of the Selective Service Act of 1948 which was recently signed by the President.

The Act contains several sections of extreme importance to industry in general which may be overlooked by the person who considers the law only as it affects the drafting of young men. Foremost among them is the one giving the President authority, through the heads of any government agencies, to establish a priority system for delivery of various articles, with heavy penalties for failure or refusal to produce within the required time.

In a bulletin issued to members of the Furniture Manufacturers Association, it is pointed out that the President, after consultation with the National Security Resources Board, may determine that it is in the interest of national security for the government to obtain prompt delivery of various articles for the use of the armed forces or for the Atomic Energy Commission, and may place orders for such quantities as he may deem appropriate. When received, such an order must be given such priority with respect to all other orders, both government and private, as the President may prescribe, and it is the duty of the person receiving the order "to fill such order within the period of time prescribed by the President or as soon thereafter as possible."

(Continued on page 23)

## EDITORIAL COMMENT

### The Idea That Failed

THE old story of the man who stood on a busy street corner unsuccessfully trying to give away \$10 bills (this, of course, was before the days of radio gift programs) does not sound so strange to the editors of *Western Industry*, now that they have had an experience of a somewhat similar nature.

Here is what happened: the first packaging show in the West is to be held in San Francisco August 10-13, and although national packaging and materials handling shows have been very successful, the attendance from the West has been pitifully scanty. Consequently some of those in charge of the San Francisco show felt it would be highly desirable to have some advance publicity which would arouse the curiosity and interest of Western plant managers, superintendents and foremen to such a pitch that they would be sure to attend.

So the editors of *Western Industry* developed an idea which they felt would be logical and help materially to bring about the desired attendance of operating men. The editors wrote all of the 100 odd exhibitors asking them to send in promptly, NOT WRITE-UPS ABOUT THEIR BOOTHS, EQUIPMENT AND SUPPLIES, but a brief example of how some specific packaging problem had been solved or benefited by the use of their products, because we felt this approach was essential in order to draw the desired attendance. The resulting symposium (so we fondly hoped) would be well worth while for all concerned.

But the results! Back came various letters, saying in exactly these words or in similar language, "We are sure that the enclosed write-up about our booth is just what you want." (Exclamation point omitted, because entirely inadequate for such a situation.)

After several weeks, the public relations man for an Atlantic Seaboard manufacturer replied that our idea was a good one, but unfortunately he had no good case example to send us. Finally a distributor in Los Angeles sent in two excellent examples that hit the nail exactly on the head, but we had to inform him that our big idea had been abandoned because he was the only man who seemed to understand what we were driving at, and we could not make a full-fledged feature about packaging from his contributions alone. Still later a New York manufacturer offered to supply us a good example out of Tacoma, but even if we had had time to accept, we still only would have had three news items out of the dozen or more needed to build up a good story.

So, the two or three-page symposium of useful and interesting applications of packaging is not appearing in this issue of *Western Industry*, and if a large flock of operating men from Western plants appear at the San Francisco packaging exposition this month it won't be our fault. Next time we get a million dollar idea, we are going to sell it in a course of ten easy lessons.

### What Cooperation Means

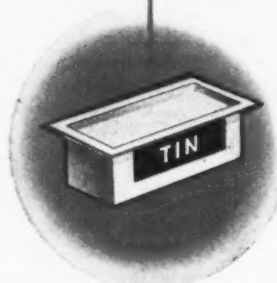
"ALTHOUGH a word with which to conjure, *cooperation* means simply operating or working together; nothing more, nothing less. Our economic system in the United States is a co-operative system. We are all working together to supply our mutual wants. If we had to make our livings by producing for ourselves everything we consume, we would have a very meager standard of living. By specialization in production for the market each of us contributes to a greater total output. And by exchange through the market we enjoy a much higher standard of living than otherwise would be possible. This simple economic fact is often overlooked by advocates of such programs as *production for use* and other ill-advised efforts at economic change. All production is for the use of all of us and all of it is cooperative production. This is not to say that there is no room for improvement. Our present economic system has many defects. Knowledge of the facts about the system is a first step to improvement."—DR. N. H. ENGLE, director of the bureau of business research, University of Washington.

# ELECTROPLATING

*Made Easier... Better*

with

## General Chemical METAL FLUOBORATE Solutions



Stemming from advanced war-time research by General Chemical, Metal Fluoborate Solutions have rapidly won an important place as electroplating chemicals, especially for their standout performance in lead, tin, lead-tin alloy, copper and zinc plating operations.

General Chemical's Metal Fluoborates offer electroplaters an unusual combination of advantages not available in other plating agents. Note the special features outlined here. Consider how important each one can be in terms of efficiency and economy in your operations!

1. No mixing or dissolving necessary... supplied in concentrated solution form.
2. Easier bath preparation.
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You should know more about these modern developments for better, easier electroplating. For detailed operating data, experimental samples or commercial quantities, write or phone nearest office below. When planning special operations, draw on the knowledge and experience of our technical

specialists in setting up baths for test or full scale runs.

### TECHNICAL BULLETINS AVAILABLE

Technical Information Manual ZF-1... The New Approach to Zinc Plating.

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(Continued from page 21)

Failure to carry out such an order properly gives the government the right to seize the plant, mine or other facility and operate it, and the owners or officials of such a company can be held guilty of a felony punishable by three years imprisonment or a fine of \$50,000, or both.

In recognizing the importance of "small business" to the national security, the Act defines such a business as one whose position in the industry or trade is not dominant which employs fewer than 500 persons, and which is independently owned and operated.

### Trade Association Formed By Small Manufacturers

Small Industries of Northern California, Inc., is the name of a newly formed trade association which has its headquarters in Oakland. Don Sigerson is president. He is president of the All Work Manufacturing Co.

Established on the theory that general economic health of the community depends on a healthy small industry, the association will promote four main developments: More sources of sub-contract work for the job shop members through a central clearing house and field service; additional outlets for the products of manufacturing members; the opening of channels to materials and equipment at more favorable prices for the small manufacturer; and more efficient and economical small plant operation through cooperative programs of sales, purchases and manufacturing of products.

Membership in the new group includes the following types of small industry: machine work, stamping, plastic moulding; die-casting; sand-casting; forging; industrial finishing; welding, sheet metal, electrical and woodworking.

Other officials of the association, in addition to Mr. Sigerson, are George Smedberg, Associated Lighting Services, vice-president, and Kyle Van Nest, Precision Machine Products, secretary-treasurer.

### Apprenticeship Ratio

Apprenticeship ratio in the southern California furniture manufacturing industry is one to five in the case of the AFL United Brotherhood of Carpenters and Joiners contract and one to ten under the CIO master agreement. The AFL contract says the limitation of one learner to each five classified men in any department may be changed by mutual consent of the union and management. Under the CIO agreement learners and/or apprentices may be hired at the rate of not more than a total of one to every ten journeymen except when journeymen are not available, and

(Continued on page 25)

IT'S NEW! IT'S LIGHT! IT'S STRONG!

IT'S BUILT WITH—  
**AW DYNALLOY**

Here's a new and versatile high strength, low alloy steel which makes it possible to design stronger structures or to reduce dead-weight as much as 40% without any reduction in strength or safety. Buses, trucks and freight cars built with AW Dynalloy haul more payload and less dead-weight. Dynalloy has four to six times the resistance to atmospheric corrosion as plain carbon steel or approximately twice that of copper bearing mild steel. Greater resistance to impact, abrasion and fatigue together with excellent weldability and cold forming properties give AW Dynalloy advantages that can increase your profits and

decrease your shop costs. Get complete information about AW Dynalloy now.

Write for your copy of our New Folder H-3. It contains helpful information and maximum sizes.

#### PHYSICAL PROPERTIES OF AW DYNALLOY

Yield Point P. S. I. Minimum	50,000
Tensile Strength P. S. I. Minimum	65-80,000
Elongation in 2" %, Minimum	25.0
Elongation in 8" %, Minimum	1,500,000
Endurance Limit P. S. I. T. S.	45,000
Specimen Cold Bend, 180° @ diameter = 1 thickness	
*For material under 5/16" to 3/16" inclusive, deduct 1.25 per cent for each decrease of 1/32" below 5/16" from the percentage of elongation in 8" specimen above.	

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# The Governor of Colorado *invites You*



THE STATE OF COLORADO  
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To American Industry:

Look long at Colorado.

A vigorous, young state, awake to its opportunities yet aware of its needs, will challenge your attention and stimulate your imagination.

Natural resources we have in abundance with the water and power for their development. Our labor force is highly adaptable, our markets are rapidly expanding.

Our health-giving climate, our scenic setting make Colorado a soul-satisfying home for you and your families.

And most important — we know where we're going! Our leaders in business, industry, agriculture and education, through their Resources Development Council, are charting a course toward a sound, stable future for our people.

Look long at Colorado — it offers you much!

*Lee Knous*  
Governor



Lee Knous

\* One of a series of advertisements based on industrial opportunities in the states served by Union Pacific Railroad.

Unite with Union Pacific in selecting sites and seeking new markets in California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, Oregon, Utah, Washington, Wyoming.

\*Address Industrial Department, Union Pacific Railroad  
Omaha 2, Nebraska

## UNION PACIFIC RAILROAD

*Road of the Daily Streamliners*



(Continued from page 23)

when journeymen are available no learners are to be hired without written permission from the union.

### C F & I Begins Work On New Rod Mill

With completion expected by the middle of 1949, construction work is under way on a new rod mill at the Pueblo, Colorado, plant of the Colorado Fuel & Iron Corporation. The mill is part of a \$9,000,000 expansion and improvement program throughout the company's various operations.

Excavation work for the new mill is being done by the A. S. Horner Construction Company, Denver, while manufacture of the mill itself and related equipment has been awarded to the Morgan Construction Co., Worcester, Mass. The mill, together with adjacent billet yard and motor rooms, will cover 77,500 square feet.

A number of the most advanced facilities known to the steel industry for rolling carbon steel rods will be incorporated in the mill. Principal product will be No. 5 rod, delivered at a rate of 4,200 feet per minute.

### Boilermakers Union Goes Collegiate

A graduate of the University of Oregon and of the Harvard University school of labor relations has been elected as business agent, member of the executive board, and delegate to the building trades council and the metal trades council for Local 72 of the Boilermakers union (AFL) at Portland.

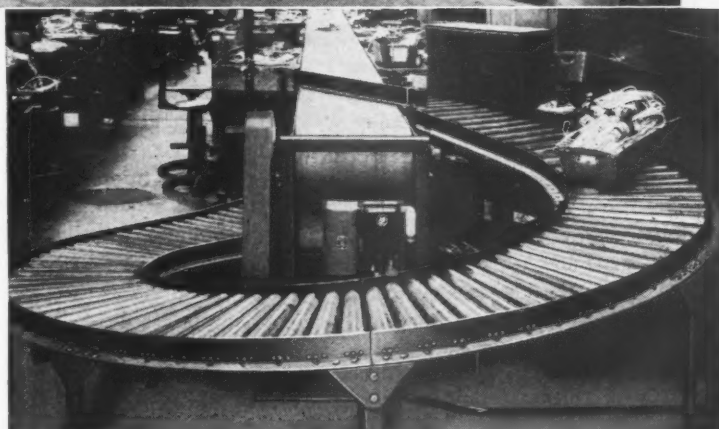
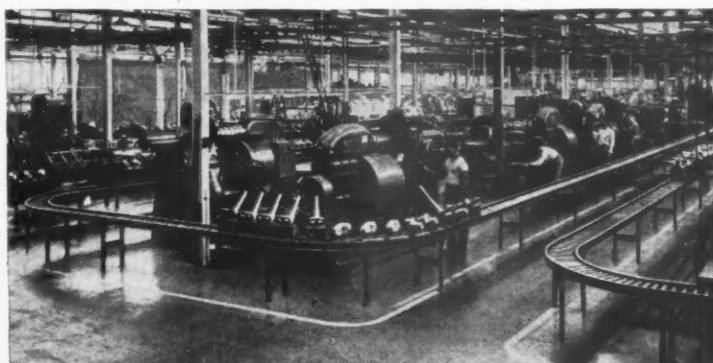
Elmer Williams, who succeeds Ralph Calhoun as business agent, received the highest number of votes of any candidate for each of the four offices in a strongly contested election held during June. The Boilermakers local has jurisdiction throughout Oregon and part of Idaho, and is the only union of its kind in the shipbuilding and fieldwork jurisdictions. At one time it had more than 70,000 workers, but is down now to slightly over 3,000 members scattered throughout the United States.

### Working Days Count

Ninety working days, rather than 90 calendar days, is what is meant by "after 90 days" in the current contract between 21 furniture manufacturers in southern California and the United Brotherhood of Carpenters and Joiners (AFL), according to the ruling of an arbitrator. The phrase referred to the provision in the wage scale that after this lapse of time inexperienced new employees should be classified as helpers and receive a higher rate.

## CONVEYORS LIKE THIS WON'T CUT YOUR COSTS

Looking for a way to get material from one part of your plant to another . . . you wouldn't consider the burro as the best answer. The real answer to fast, economical material handling is Standard Conveyors—a system, a section or a portable powered unit. Standard Conveyors are built for almost every material handling need, from mail to malleable iron castings. Look over your shop or warehouse, there's more than an even chance you can save time, money and labor with a Standard Conveyor. Standard Conveyor Company, General Offices: North St. Paul 9, Minn., Sales and Service in Principal Cities.



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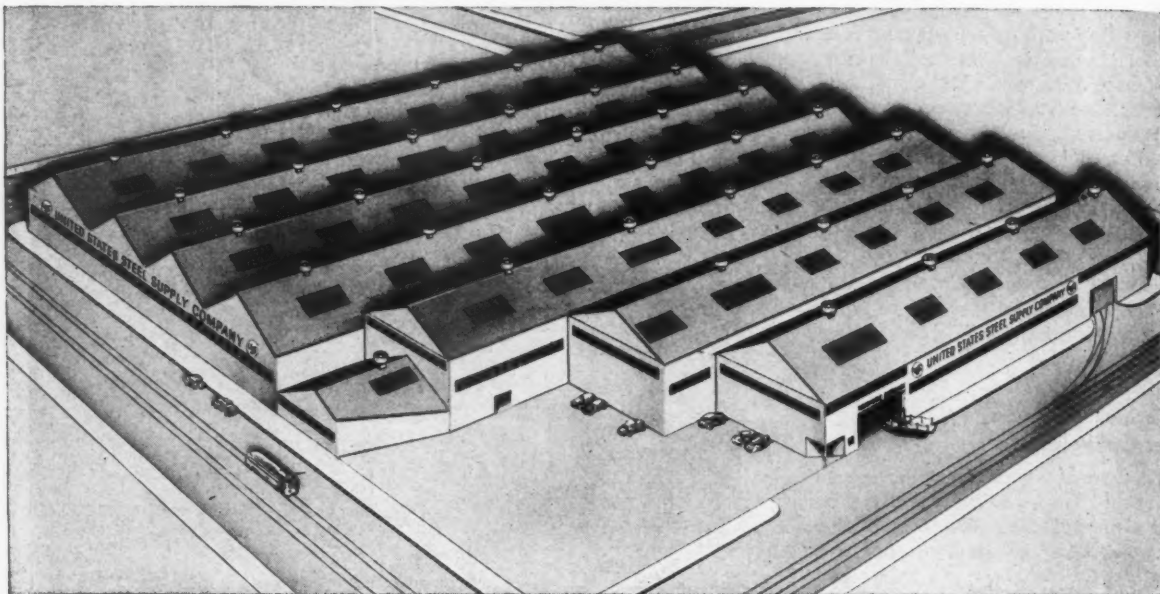
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# New steel warehouse now open in *San Francisco*

*... will further help to serve the needs of Western Industry*



**I**N San Francisco, United States Steel Supply Company has opened another Pacific Coast warehouse. This will mean better and more efficient service not only to steel users in the Bay Area, but to all other steel users along the West Coast and in the Northwest. We plan to carry complete stocks of steel, steel products, tools and equipment. Our staff of experienced people will aim to give you the kind of service that has made our

name famous in the steel business. We have the latest equipment for cutting, processing and handling materials. Our building is scientifically laid out to speed the zoning and loading of steel for shipment, so that we can serve you quickly and efficiently.

If you use steel—call us. Whether your needs are large or small we welcome your inquiries, which will receive prompt, courteous and efficient attention.

## UNITED STATES STEEL SUPPLY COMPANY

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*Symbol of Service  
for Steel Users*

UNITED STATES STEEL

# THE WESTERN OUTLOOK..News...Statistics...

1

**Western employment continues in healthy condition; more agricultural workers needed; Northwest to need more railroad cars; Steel outlook still dark for Pacific industries; Retail apparel sales disappointing but production gains; Western sugar starts rise as Cuban harvest ends; Cling peach price \$14.50 over last year; Basic aluminum rate up.**

## Employment Picture

**W**ESTERN employment generally showed healthy increases in recent weeks, with the non-durable goods group showing biggest gains. Agricultural employment lead all the rest—in California this group reaches an all-time record high of 319,800 persons and there were still more jobs than takers.

Important sections of the Northwest were hampered by the most disastrous floods in many years, and scores of factories required extensive repairs before production could be resumed. Shutdowns caused by the floods hindered planned seasonal expansion in the lumber, woodworking and several other industries, but in Oregon employers report that they expect employment to reach a higher level in the late summer than at any time in the state's history.

The maritime picture was not too good, with lack of cargo accounting for the idleness of many vessels. An example of this was a day in early July, when out of 14 cargo ships in San Francisco Bay, eight were laid up for lack of cargo.

Wage and salary workers in California gained slightly. Losses in the fields of shipbuilding, automobiles and furniture, plus labor disputes in the metal working industries were chiefly responsible for a decline in the durable goods field during May, but

California employment, as a whole, showed a gain because of increases in the food industries.

Inland, an absence of labor-management disputes, coupled with a seasonal upsurge in business activities, made the employment picture a bright one. In Utah, jobs available were largely in the metal mining field because workers from the underground diggings were seeking seasonal employment in construction and agriculture. According to the report of the Utah Department of Employment Security, the number of registered job seekers decreased almost 3,000 between May 1 and June 1, while job openings registered by employers showed a gain of about 1,000.

Arizona employment showed one of the most remarkable gains. Total manufacturing employment showed an increase of 300 as of May 1, and was 14.1 per cent ahead of May 1947. Trade also showed a gain, but service industries dropped slightly. Mining dropped for the second consecutive month, but was still ahead of a year ago.

Montana was also in good condition, with insured unemployment, as measured by the total number of persons unemployed and seeking jobless benefit funds from veteran or civilian funds, hitting a June low for a peace-time year. There were 30 per cent fewer unemployed than at the corresponding date a year ago. Work applica-

tions in Washington declined in May, being 13.1 per cent below April. However, the total number of job seekers filing applications was ahead of last year, with the greatest increase recorded in the number filed by men.

Nevada's Employment Security Department predicted that as the tourist season progresses employment in that state would continue to increase. During May the total rise in employment was largely accounted for by the retail trade.

## Commerce and Banking

The Pacific Northwest Advisory Board has predicted an increase of 5½ per cent in railroad car requirement for the third quarter of 1948 over the similar period of 1947. The increase amounts to more than 15,000 cars of which about 80 per cent will be required by lumber and forest products. The largest increase percentage-wise is for bananas which are being shipped into Seattle by boat from Central America in large quantities. No cars were required for this traffic last year. Principal decreases are expected in fresh fruits with a 77 per cent decrease predicted in the apple shipping requirements.

Third-quarter forecasts from the mountain states, percentage increase over 1947: Colorado, 5.1%, good fruit crop, more cars available for coal, increased oil refinery capacity, reasonable increase in building materials; Idaho, 3.3%, wheat, flour, potatoes, sugar, syrup, fertilizers up, some decreases lumber and canned foods, substantial decreases in livestock; Utah, 33.1%,

(Continued on page 29)

## MANUFACTURING EMPLOYMENT

Estimated Number of Employees in Non-Agricultural Establishments—Source: U. S. Bureau of Labor Statistics

	MONTANA		IDAHO		WYOMING		COLORADO		NEW MEXICO		ARIZONA		UTAH		NEVADA		TOTAL MTN.	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
November	18,000	18,600									12,700	13,000	27,830	26,874	3,500	3,700		
December	17,900	18,500									13,900	12,900	27,710	26,462	3,500	3,600		
	1947	1948							1947	1948	1947	1948	1947	1948	1947	1948		
January	16,300	17,700							8,200	13,300	12,900	22,69 <sup>a</sup>	25,000	3,600	3,300			
February	16,400	17,300							8,500	8,700	13,300	14,700	22,880	23,320	3,500	3,300		
March	16,300	17,200							9,000	8,300	14,100	15,100	23,050	23,700	3,200	3,300		
April	16,600	17,100									14,500	15,900	23,510	23,300	3,700	3,300		
May									9,100	9,300	14,200	16,200	24,110	24,400	3,300	3,300		

	WASHINGTON		OREGON		CALIFORNIA		TOTAL PACIFIC	
	1946	1947	1946	1947	1946	1947	1946	1947
November	168,000	178,200	125,400	130,000	705,500	716,000		
December	166,000	174,600	122,900	127,000	705,800	714,900		
	1947	1948	1947	1948	1947	1948	1947	1948
January	162,300	172,900	121,500	122,700	697,100	704,100		
February	166,100	173,000	124,700	125,300	693,700	703,000		
March	169,200	173,700	122,000	121,100	692,400	700,200	1,009,000	1,043,000
April	170,400	175,300			698,600	695,800		997,900

## INSURED UNEMPLOYMENT

(Under all programs: figures in thousands. From Social Security Board)

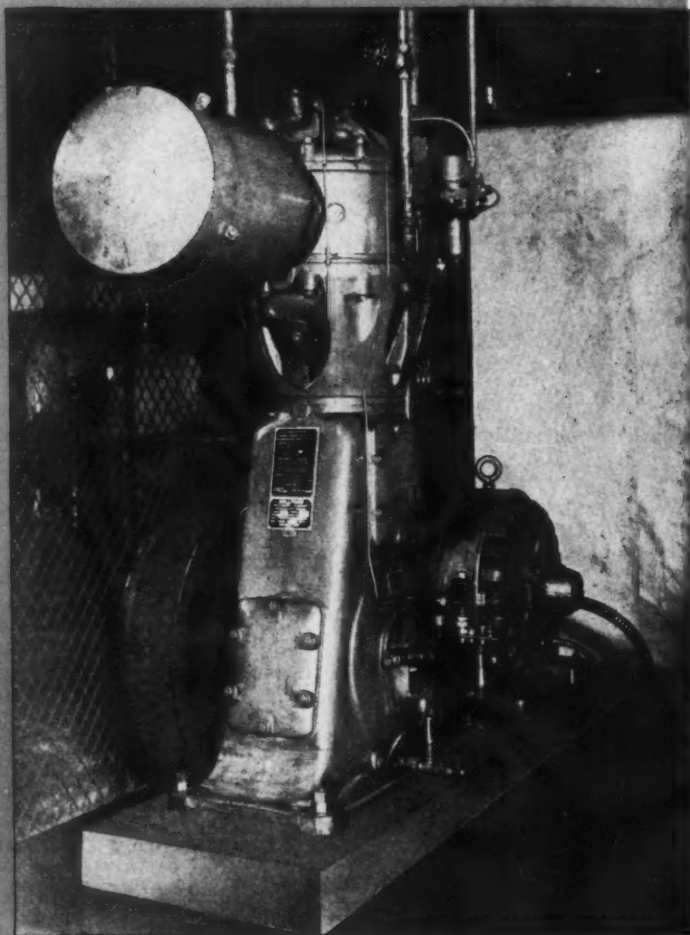
Week ending	Ariz.	Colo.	Idaho	Mont.	Nev.	N. Mex.	Utah	Wyo.	Total Mtn.	Calif.	Ore.	Wash.	Total Pacific
Oct. 4	4.3	2.5	.7	1.1	1.3	1.7	2.3	.2	14.1	136.3	8.4	21.3	168.0
Nov. 8	4.1	2.5	1.3	1.4	1.5	2.0	2.6	.3	16.7	134.1	14.7	24.6	173.4
Dec. 6	4.7	4.2	3.9	2.9	1.8	3.2	4.3	.6	25.6	176.4	19.9	36.3	232.6
Jan. 3	5.1	6.5	6.6	4.7	2.0	5.0	6.3	1.1	37.3	204.2	27.2	45.7	277.1
Feb. 7	6.3	8.8	8.0	7.1	2.5	5.8	7.9	2.0	48.4	195.2	23.1	47.7	266.0
March 6	7.1	10.3	8.1	7.9	2.5	6.0	7.5	2.0	51.4	228.9	24.0	47.1	300.6
April 3	6.6	.....	6.2	6.4	2.2	5.4	5.9	1.5	42.0	233.3	20.5	37.6	291.4
May 1	5.5	6.2	3.7	4.0	1.9	3.5	4.3	.8	29.9	220.6	16.5	31.5	268.6
June 5	4.4	4.2	1.5	2.0	1.4	2.4	2.3	.4	18.6	193.7	11.7	25.7	231.1



# COMPACT!

## JOY WG-9 HEAVY DUTY AIR COMPRESSOR

**11 SIZES  
20 TO 150 P.S.I.  
153 TO 822 C.F.M.**



Because of its smooth running characteristics and the small base area of the rugged semi-steel frame, only a small block-type foundation is needed, making the Joy WG-9 an ideal installation where space is at a premium. Yet,

despite this small space requirement, the WG-9 is built for heavy duty, continuous, 24 hour a day service, and incorporates such features as full force-feed lubrication, anti-friction main bearings and long-life "Dual Cushion" valves.

**CYLINDER LINERS REPLACEABLE ON THE JOB**



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SULLIVAN DIVISION

**JOY MANUFACTURING CO.**

GENERAL OFFICES: HENRY W. OLIVER BUILDING, PITTSBURGH 22, PA.



(Continued from page 27)

coal and coke up 62%, iron ore substantially up, non-ferrous ores and metals off, grain crop good, livestock down; Wyoming, 3.2%, cattle and calves up, lambs, sheep and wool down, petroleum up, ore and concentrates up, coal and coke down.

## Electric Energy

Demand is continuing to increase in southern California, with supply gradually being added to. San Diego has added a 50,000-kw. steam unit. Central Arizona Light & Power also has added a 30,000-kw. steam unit, and the Navy's 10,000-kw. mobile generating unit which has been loaned to the company will be taken out in October. Changing over to 60-cycle current from 25-cycle in Arizona will enable utilization of power from the new Parker Dam.

Pacific Northwest has been getting back to normal after the big interruption caused by the Columbia River flood, with outlook for the remainder of the year fairly good. The hydro capacity in the Northwest dropped over 400,000

kw. in the space of a few days late in May, Coulee being reduced to 85 per cent of capacity and Bonneville to 20 per cent. Shutdowns of the Reynolds aluminum works at Troutdale and other industrial shutdowns prevented a power shortage.

Prediction is for one of the highest annual runoffs on record. The Northwest has experienced a much wetter than average year to date, and if this condition continues there should be no power shortage during the low runoff months in the fall.

Mills in the central Oregon area have been installing diesel generating plants to overcome a local shortage which is due largely to a lack of transmission facilities. Completion of a transmission line from the Columbia River this fall is expected to relieve the situation by October, but in the meantime planing mills in Prineville and Redmond have been restricted to night hours for operation.

Bids for the construction of the second stage of McNary Dam on the Columbia River near Umatilla, Ore., were opened by the Corps of

Engineers on July 20. This is pretty much in line with the schedule which will permit power generated at McNary to go on the line by the fall of 1954.

## Fuels

First new major petroleum pool to be discovered on the West Coast in the past ten years is believed to have been opened up by completion of Richfield's discovery well in Cuyama Valley, midway between the oil-rich San Joaquin Valley and the coast. This field is shallow in depth, easily accessible to major refining districts of California, and yields high gravity oil.

Crude oil production continues to climb slowly to new high records and is running about 7 per cent above last year's level. Biggest gains were in Texas, Oklahoma, New Mexico, Kansas, Louisiana, Mississippi, and Colorado. Small losses were reported in California, Montana, and Illinois.

A lower Federal court decision has ruled against major oil companies' practice of requiring distributing stations to sell company products exclusively. The case will be carried to the Supreme Court, the lower court order not being effective until six months after the highest court has disposed of the case.

Plans for a synthetic fuels industry with government loans are at least temporarily sidetracked. A bill calling for a \$350,000,000 appropriation to cover necessary RFC loans died when Congress failed to act before adjournment.

Federal Power Commission has approved construction of a \$151,000,000 pipeline by Transcontinental Gas Pipe Line Co., to bring natural gas from the Texas gulf coast to New York and Philadelphia. It is to be ready by 1950 and in wintertime will replace at least 629,000,000 gallons of fuel oil now burned for heating.

Additional gas may be brought to the West Coast and to Arizona and New Mexico by a proposed enlargement of the El Paso Natural

(Continued on page 31)

## ELECTRIC ENERGY

(Production for Public Use—In thousands of kilowatt hours. Source: Federal Power Commission)

	Mountain		Pacific Northwest		California		Total Pacific	
	1946	1947	1946	1947	1946	1947	1946	1947
November	937,678	1,064,947	1,302,623	1,484,350	1,443,167	1,531,154	2,745,790	3,015,504
December	1,002,170	1,191,939	1,413,478	1,606,168	1,490,316	1,620,287	2,903,794	3,226,455
January	1,061,564	1,228,508	1,477,873	1,635,440	1,466,716	1,605,642	2,944,589	3,241,082
February	962,756	1,168,514	1,328,994	1,539,841	1,301,334	1,514,611	2,630,328	3,054,452
March	1,041,287	1,200,824	1,454,305	1,628,060	1,531,005	1,572,699	2,985,310	3,200,759
April	185,575	1,402,860	1,456,204	1,722,614	1,662,024	1,503,141	3,118,228	3,225,755

## WHOLESALE'S SALES

In thousands of dollars. Percentage changes are from corresponding month of preceding year. From Bureau of the Census.

### MOUNTAIN

	Automotive Supplies	Change	Electrical Goods	Change	Furn. and house furn.	Change	Groc. and foods ext. farm prod.	Change	General Hardware	Change
Nov.	654	+24	3,924	+51	...	...	3,906	-1	2,015	+16
Dec.	635	+3	5,368	+27	...	...	3,647	-7	1,513	-3
Jan.	476	0	2,712*	+46	406	+9	1,442	...	...	...
Feb.	676	-1	2,808	+28	...	...	1,568	...	...	...
March	631	-6	3,390	+34	395	+20	2,055	...	...	...
April	789	0	3,657	+29	...	...	...	2,511	+26	...

### PACIFIC

	Industrial Supplies	Change	Lumber & bldg. mat.	Change	Mch. equip. and supplies excl. elec.	Change	Metals	Change
Nov.	1,790	-5	13,345	+30	329	+34	13,838	+3
Dec.	2,560	-13	21,380	+37	1,581	+5	13,302	-5
Jan.	1,719	-18	10,858*	+31	1,634	+9	3,475	-2
Feb.	2,401	-19	11,542	+22	341	+20	3,289	...
March	2,601	-16	13,550	+41	285	+42	2,889	...
April	1,949	-15	12,546	+21	281	+55	5,215	...

\*Full-line wholesalers.

## INDEX OF DEPARTMENT STORE SALES

Index numbers, 1935-39 daily average=100 with seasonal adjustment. Compiled by Federal Reserve Bank.

	Total 12th Fed. Res. Dist.		Southern California		Northern California		Portland		Western Washington		Eastern Washington and northern Idaho		Utah and southern Idaho		Phoenix	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
November	320	340	355	371	287	305	287	330	347	364	255	278	299	313	361	437
December	321	352	343	388	287	318	304	345	348	363	312	340	366	358	423	477
January	314	340	338	373	275	291	301	352	330	349	328	334	365	390	411	457
February	311	319	341	365	267	282	308	301	329	313	312	291	343	321	419	441
March	319	331	339	374	281	283	300	318	336	336	329	341	366	331	432	448
April	320	353	350	400	282	303	292	335	334	349	324	348	355	386	421	482

## FREIGHT

Cars of revenue freight, railroad carriers in 11 Western states.

(Compiled from Assn. of Am. R.R. weekly reports)

	Carloadings		Received from Eastern Connections	
	1946	1947	1946	1947
November	662,225	699,897	309,743	340,873
December	526,827	519,397	289,873	281,887
January	480,719	472,567	250,315	250,104
February	509,715	463,924	288,172	271,370
March	656,920	600,715	350,527	313,850
April	522,144	688,311	279,392	356,101

\*10-week period. †incl. 4 weeks of following month.

## BANK LOANS

Industrial, commercial and agricultural (In millions of dollars)

From weekly reporting member banks of Fed. Res. System in 7 western cities: L.A., S.F., Portland, Seattle, Tacoma, Spokane, and Salt Lake.

(Average of Wednesday reports)

	1947
December	1,943
January	1,976
February	1,999
March	2,000
April	1,992
May	1,983

## BANK DEPOSITS

(In millions of dollars—adjusted)

Daily average month, all member banks in 12th Fed. Res. Dist. Demand deposits excluding U. S. Gov't deposits, cash items in process of collection, and interbank deposits.

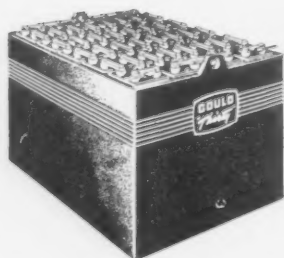
	1947	Net Demand Deposits	Time Deposits
December	9,114	5,938	...
January	9,095	6,015	...
February	8,836	6,044	...
March	8,885	6,065	...
April	8,676	6,036	...
May	8,720	6,012	...

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(Continued from page 29)

Gas Company's lines, which already are supplying large quantities through the recently completed Texas-California pipeline. Federal Power Commission authority has been requested for the \$54,000,000 project.

API figures show California last year used more gasoline than any other state, with Texas, New York, Pennsylvania, Illinois, and Ohio following in that order.

Enough steel will be available this year for gas and oil field operations such as drilling, but not all that will be needed for pipelines, the House Commerce Committee was told by steel industry spokesmen. To produce more of the type of steel required, plants would have to be changed over or new ones built, also diverting steel from such users as the auto and farm implement industries.

## Chemicals

Expansion of the sodium sulphate production in north central Washington and entry of the detergent field with a refined product are planned by Industrial Enterprises, Inc., which recently purchased the Washington Chemical & Salt Company's plant.

Some of the original founders of the Willamette Valley Wood Chemical Co. are forming a new organization, Industrial Alcohol, Inc., with the intent of taking over the alcohol production plant at Springfield, Ore. War Assets Administration is reported to have granted an additional 60 days for organization of the group before closing bids on the war surplus plant.

Resumption of operations at the Columbia Metals Corp. plant at Salem, Ore., is expected immediately as a result of approval by Congress of a bill to allocate anhydrous ammonia required in the production of fertilizer. The plant has been closed since March by a lack of ammonia.

## Steel

In the slowly but steadily worsening picture of steel supply on the Pacific Coast is one bright ray of hope in the near future, that Bethlehem's wire mill in Los Angeles will be operating before long, thus feeding a wire-starved market in the southwest. Another is the possibility that the holding up by the government of permission to export pipe for the Arabian pipeline, fabricated by Consolidated from plates supplied by Geneva, will release more pipe for domestic use. Some of this Arabian pipe has been sold to a Tennessee concern for a transmission line from Texas to the Atlantic seaboard.

## BITUMINOUS COAL AND LIGNITE

(In thousands of tons. From Bureau of Mines)

	(Colo.-N. Mexico)		(Wyoming)		(Utah)		(Montana)		(Wash.-Alaska, and Oregon)	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
November	559	723	636*	778	442	581	308	309	115	145
December	885	885	827	827	715	715	330	330	164	164
January	971	860	894	625	776	770	420	279	150	153
February	810	770	738	634	770	680	298	262	131	144
March	768	419	717	341	753	321	286	281	143	129
April	431	370	482	378	514	245	196	200	108	104

## PETROLEUM

(California, Oregon, Washington, Arizona, Nevada)  
(From Bureau of Mines)

	CRUDE PRODUCTION (Barrels, daily avg.)		GASOLINE		TOTAL DELIVERIES (Thousands of barrels daily)		GAS OIL & DIESEL		HEAVY FUEL OIL		ALL PRODUCTS	
	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946
November	929,552	293	317	128	138	363	380	896	978	993	1,001	993
December	927,197	308	349	146	173	416	441	993	1,001	1,001	1,001	1,001
January	930,953	313	323	177	162	420	368	1,035	990	1,035	990	1,035
February	933,622	320	313	142	204	425	394	1,012	1,053	1,012	1,053	1,012
March	29,138	304	334	117	170	390	390	932	1,036	932	1,036	932
April	28,300	336	357	125	159	385	357	988	1,000	988	1,000	988

Meanwhile voluntary allocation programs, the European recovery project and the increased military establishment through the draft and the 70-group aircraft program make the future for civilian business look dark. Every steel mill is expected to take its proportionate share of government business and the government will have first call on all deliveries.

## Aluminum

About 24 per cent of the Northwest aluminum production was lost during June when the Reynolds Metals reduction plant at Troutdale, Ore., was closed down because of the flood on the Columbia River. The plant was not flooded, but it was shut down as a safety measure when dikes showed signs of softening. The plant should be back in operation by the end of July.

An increase in basic cost of aluminum was made at the end of June by the Aluminum Company of America to offset a wage increase recently granted. Pigs went from 14 to 15 cents per pound and ingots from 15 to 16 cents. It represents the first increase in aluminum prices in 11 years.

## Nonferrous Metals

Nonferrous metal production is high for peacetime, and gradually creeping up under the stimulus of price increases. But negotiations on

new wage contracts are just getting started. And what they will bring is a question, in view of the brawl between International Union of Mine, Mill & Smelter Workers and the Progressive Metalworkers council.

Increases in the price of zinc were being predicted late in June because metal subsidy bills failed to get through Congress before adjournment. With demand for zinc continuing to exceed supply, some reports put the increase at as much as 3c per pound which would represent 25 per cent. At Hailey, Idaho, mining properties which have not been worked since 1892 are being reopened, principally for milling of old dumps, tailings, backfills, and stopes.

## Canning and Packing

Despite the fact that it was generally agreed a month ago that prewar conditions had returned to the fruit and vegetable canning industry, with habitual uncertainty as to how much canned goods it is possible to move into consumption, the outlook has temporarily at least taken on another cast. The growers' price for California cling peaches, the most important single commodity, has been set for \$65 a ton this year, as against \$50.50 last year. Increased costs to growers and some spirited bidding by canners seem to have combined to cause the California Canning Peach Association to put the price up to wartime levels. Crop is estimated at 554,190 tons, compared to 565,321 tons last year, but if the fruit sizes up in accordance with some estimates the crop will be 20,000 tons over last year's deliveries. This would make a pack of better than 15,300,000 cases. A new stabilizing factor seems to be the possibility of larger canned goods buyers advancing money against 1948 packs, a source of financing hitherto untapped.

California Bartlett pear crop estimated at 200,000, compared with 270,000 tons in 1947. Northwest Canners Association final report for the 1947-48 season, as of June 1, shows a total of 109,588 cases (No. 2½ basis) of free-stone peaches unsold; purple plums, 557,061 cases; pears, 273,855 cases; apricots, 18,381 cases; sweet cherries, 3,719 cases; apples, 152,985 cases; applesauce, 14,832 cases.

Winter pack of California quick-frozen vegetables have staged a big comeback from 1947, with 23,000,000 lbs., as against 12,000,000 lbs.

(Continued on page 33)

## IRON AND STEEL

Western Area of the United States  
From American Iron and Steel Institute (in net tons)

	Pigiron Output	Percent Capacity	Steel Output	Percent Capacity
December	209,815	97.6	397,905	97.0
January	211,208	95.4	398,553	92.8
February	198,927	96.2	379,291	94.5
March	186,966	84.5	395,781	92.1
April	133,030	62.1	310,108	74.5
May	187,051	84.5	398,905	92.9

## Alloy Steel

	Output	Carbon Ingots, Hot Topped*
December	3,717	9,134
January	3,445	8,588
February	4,888	4,850
March	7,288	5,447
April	4,806	4,255
May	7,173	9,341

\*Included in total steel.

## COPPER

(Short tons. From U. S. Bureau of Mines)

	ARIZONA		UTAH		MONTANA		NEW MEXICO		N. DAKOTA		TOTAL	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
November	28,300	28,885	17,425	16,155	4,800	5,100	4,000	5,435	4,200	3,900	59,488	60,269
December	30,300	30,000	17,800	22,500	4,850	4,900	4,100	5,200	4,400	4,900	62,245	67,375
January	30,700	31,235	22,550	22,360	5,350	5,000	4,614	6,046	3,800	3,500	67,383	68,920
February	29,450	29,300	21,800	21,980	5,050	4,900	4,732	5,652	4,000	3,000	65,383	65,547
March	32,000	31,325	24,250	23,075	5,500	5,640	4,840	5,896	4,100	3,100	71,112	69,857
April	30,200	31,355	23,500	23,400	5,200	5,370	5,471	6,130	4,050	3,280	68,853	70,412

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(Continued from page 31)

in 1947. Comparative showing by items as follows:

	1947	1948
Broomcorn	6,178,301 lbs.	11,742,246 lbs.
Spinnach	3,282,968	5,110,796
Calliflower	1,577,858	3,540,568
Broomcorn sprouts	918,276	2,708,740

Reports from the floating cannery ship, Pacific Explorer, indicate the discovery of a new source of King crabs in the Bering Sea. Working on the north side of the Aleutian Islands all cannery and freezing equipment is running at capacity.

## Flour

The 1948 wheat crop in the Northwest is expected to be the largest on record and about 25 per cent greater than last year. Growers are worried about storage facilities, and shippers about the railroad car supply which is certain to be short of requirements. While the flour market has been bad for many weeks, mills on the Pacific Coast have had a little export business to keep the grinds from slackening off still further.

## Sugar

Prices on the Pacific Coast have reversed their previous downward trend, largely as a result of the recent quota reduction on Cuban sugar, but due also to the fact that the Cuban harvest is finished, the pressure to sell relieved and sugar users who have been drawing on inventories are now coming back into the market again.

## Building Materials

It is expected that California will produce about 23,500,000 barrels of cement this year, 1,000,000 barrels more than last year. Mills are running at capacity, and demand has been about even with supply without much change. Vitreous pipe situation unchanged.

## LUMBER

(In thousands of board feet)

From West Coast Lumbermen's Association (Douglas Fir, Sitka Spruce, Port Orford Cedar, West Coast Hemlock, Western Red Cedar):

Year through	1946	1947	1948
April Production	2,510,999	2,614,964	2,875,188

From Western Pine Association figures (Idaho White Pine, Ponderosa, Sugar Pine and associated species):

Year through May	1947	1948
Production	890,938	906,827

From California Redwood Ass'n figures (includes redwoods and whitewoods):

Year through May	1948
Production	186,274

## SOFT PLYWOOD

From Bureau of the Census  
(In thousands of square feet)

	1946	1947
October	149,600	170,325
November	129,635	144,637
December	121,816	149,999
January	140,058	159,395
February	129,622	156,285
March	139,670	185,716
April	147,008	164,862

## PULPWOOD

(Pacific Northwest)

(Cords of 128 cu. ft., roughwood basis.)

Source: Bureau of Census

	Receipts	Consumption
October	334,649	281,753
November	250,992	253,600
December	235,036	280,630
January	208,941	273,886
February	232,880	299,217
March	197,668	276,231

A shortage of cement which will last throughout most of the last six months of this year is reported from central Montana. Several months ago reports from the same area indicated that representatives of Henry J. Kaiser Co. were investigating raw material deposits in central Montana with a view toward construction of a cement plant. The state at present has only one cement mill operating within its borders.

## Lumber

Douglas fir production dropped about 10 per cent under the five-year average during May, according to the figures of the West Coast Lumbermen's Association, although the total production for the year to May 31 was still five per cent ahead of the five-year average.

The outlook for continued record production was not as good at the end of June as it had been the previous month. Just as a six-week boommen's strike was settled, sawmills along the lower Columbia River were forced to shut down, either partially or completely, by the worst flood in more than 50 years. As the river gradually receded at the end of June, it was feared that low summer humidity in the woods might force a shutdown of logging operations and make the log supply more critical. At least one logging company began a six-day week for the first time since the end of the war.

Stumpage prices ran high during a month which saw more than average activity in transfers of standing timber. Anacortes Veneer, Inc., bid \$60 per thousand board feet for Douglas fir in a small tract in the Baker National Forest in northwest Washington. The highest previously recorded bid had been \$35 in the Willamette National Forest in Oregon. In private timber sales M & M Woodworking Co. purchased a half interest in 430,000,000 board feet in Oregon, and Harbor Plywood acquired logging rights to 100,000,000 board feet in Washington. About three-quarters of a billion board feet of standing timber were involved in sales during the month of June.

A repetition of the 1947 railroad car shortage is feared. Last year a number of mills were forced to curtail production in the late summer and early fall when finished lumber could not be moved away from the mills. A similar situation is expected to occur late in July this year, although railroad officials predict that it will not be quite as acute.

## APPAREL

(In thousands of dollars)

Total Women's, Misses' & Juniors' Outerwear

	Los Angeles	San Francisco
April	7,118	1,721
May	4,505	1,731
June	4,188	1,383
July, August, September	23,245	6,699
Oct., Nov., Dec.	24,948	6,844

Men's Overall's (thousands of dozens)

Men's Wool Work & Dress Trousers (thousands of units)

California

August

September

October

November

December

January

## WHEAT FLOUR

(In thousands of sacks; from Bureau of the Census)

	Ore.-Wash.	Montana	Utah	Colorado	California	Total
November	1,563	311	281	446	385	3,006
December	1,446	282	272	481	364	2,845
January	1,480	275	264	486	363	2,868
February	1,250	275	254	360	269	2,408
March	1,288	296	309	501	293	2,687
April	1,496	293	290	471	359	2,899

## Plywood

Production of Douglas fir plywood in Washington, Oregon, and California is expected to reach 2,100,000,000 square feet by the end of this year compared to 1,600,000,000 square feet produced in 1947. Despite the fact that demand for plywood materially exceeds supply, the annual meeting of the Douglas Fir Plywood Association was featured by a sales promotion program, indicating that the manufacturers foresee a change in the supply vs. demand situation within the next few years.

In the three Pacific Coast states 41 plywood mills are in production, 12 mills are under construction, and eight more mills are in the planning stage. The increase of 25 per cent in production this year over last may well be equalled again next year, which would put production at about 2,600,000,000 square feet.

## Pulp and Paper

Loss of paper production because of floods on the Columbia River have been estimated at about 20,000 tons. Several major mills on the lower river were closed by high water.

Hope for the construction of pulp mills in southeastern Alaska has risen again with the announcement that Puget Sound Pulp & Timber Co. has formed an affiliate company to construct a \$15,000,000 mill for the production of unbleached sulphite pulp. The Forest Service will readvertise timber lands for which no bids were received following two previous advertisements.

## Apparel

Production in apparel shops is rising toward its seasonal peak. Retail sales have been disappointing this spring, ranging generally from 12 to 30 per cent below last year's rate. Wholesale buying for fall and winter thus remains cautious, although some improvement has been noted since the season began.

Growth of the West's apparel industry is indicated by a Department of Commerce survey which ranks California fifth in the nation, with respect to the size of payrolls and number of employees engaged in this field. The state holds fourth place, however, on the basis of the number of factories, reflecting the apparel industry's comparative youth and recent expansion.

## HOUSEHOLD FURNITURE

Manufacturers' Shipments—11 Western States  
From Bureau of the Census  
(In thousands of dollars)

	Upholstered Furniture	Other Household Furniture	Total
3rd quarter, 1947	\$11,047	\$15,929	\$26,976
4th quarter, 1947	13,336	21,098	34,434
1st quarter, 1948	10,633	20,739	31,372

## STRUCTURAL CLAY PRODUCTS

UNGLAZED BRICK UNGLAZED TILE VITRIFIED CLAY SEWER PIPE

(In thousands of standard brick) (short tons) (short tons)

Mountain Pacific Mountain Pacific Mountain Pacific

November

December

January

February

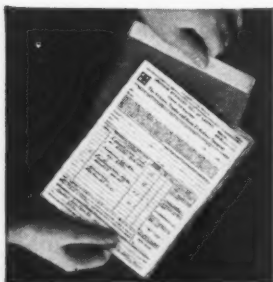
March

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Consider: your biggest outlay is for wages—for work hours. And where are most of those hours spent? *On paper work.* On writing, distributing, copying, filing, checking *business forms.* By simplifying and speeding up each of these many operations, Uarco business forms cut the cost of paper work to an absolute minimum. Ask your Uarco Representative to prove it. He will make a complete survey of your business forms needs and recommend needed improvements at no cost or obligation whatever.



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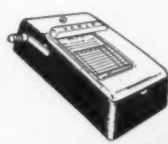
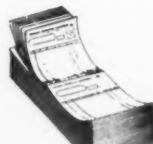
SINGLE SET FORMS



**BUSINESS FORMS**



CONTINUOUS-STRIP FORMS  
 FOR TYPEWRITTEN AND BUSINESS MACHINE RECORDS



AUTOGRAPHIC REGISTERS  
 AND REGISTER FORMS



This shipper of heating equipment finds Signode steel strapping protection cuts damage loss.



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## could improve YOUR Profit Picture!

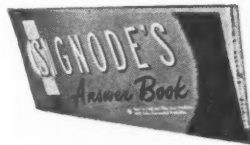
Back of many an improved packaging and shipping method, in all industries, is a Signode packaging and shipping engineer.

This man's job is to work with shippers of all kinds of products; to help them reduce damage claims; save time, money and materials—through the application of Signode's *System of Planned Protection*.

This time-proved system gives maximum protection to shipments in transit, permits single unit handling of multiple loads, speeds loading and unloading, stops the profit leaks in your shipping department.

To find out, without obligation, how you can benefit, write:

### JUST PUBLISHED



Signode's "Answer Book"—24 pages of pictures and information on better packaging and shipping methods. Write for your free copy.

Will see you at Booth 208 — Western Packaging Exposition — San Francisco, Aug. 10-13



## SIGNODE STEEL STRAPPING CO.

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STEEL STRAPPING PROTECTS YOUR SHIPMENTS AGAINST DAMAGE

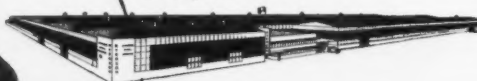
# Centers of West Coast Steel Service

## SAN FRANCISCO

(Bay Area Plant in Emeryville)

Pledmont 5-8450

Enterprise 10176



For prompt shipment of steel from stock, contact our two new steel-service plants—Ryerson in Los Angeles and Ryerson in Emeryville, across the bay from San Francisco.

Both plants are all new—equipped with the latest facilities for faster delivery of steel cut to order. Despite the great demand which frequently creates shortages, both plants are ready to serve you with large and varied stocks of carbon, alloy and stainless steels.

In addition, experienced Ryerson steel men will gladly assist you in the solution of any steel problem. So, for complete steel service, phone, wire or write our nearest plant.



## LOS ANGELES

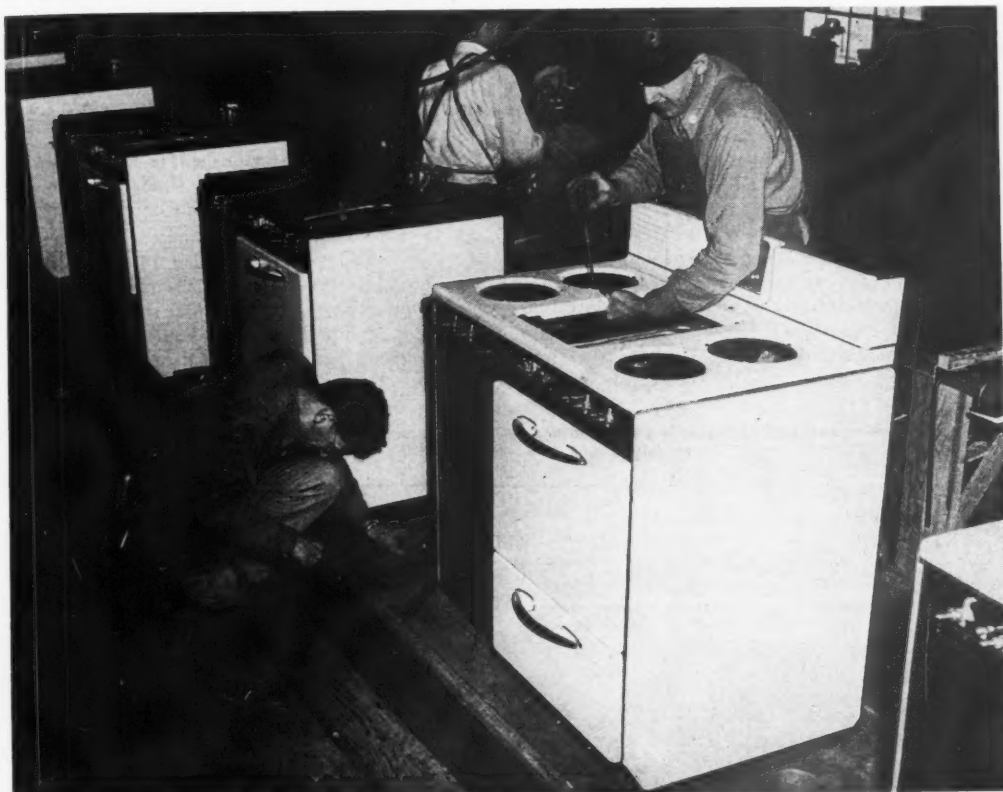
ANgelus 2-6141

# RYERSON STEEL

Los Angeles Plant: 4310 East Bandini Blvd., Mail Address: Box 3817, Los Angeles 54, California

San Francisco Bay Plant: 65th & Hollis Sts., Emeryville. Mail Address: Box 188 Emeryville, Calif.

## PICTURE OF THE MONTH



**THE INDUSTRIALIZED WEST . . .** A typical Western success story is exemplified in this scene in the Culver City plant of Western Stove Co. From two small buildings and 50 employees to a 10-acre factory and 750 workers is the history of Western-Holly, which operates one of largest continuous enameling furnaces in this half of U. S.

# Sales Budget Committee Makes Costs Fit Expected Income

**A** RELIABLE budget of sales, that enables a company to tie in its forecast of income with the other phases of its business, justifies extensive effort and any reasonable cost.

Cutter has a Sales Budget Committee which consists of:

The Vice-President for Sales, who assumes responsibility for selling quantities estimated;  
The Vice-President for Production and Research, who assumes responsibility for producing the products to be sold and their availability when wanted by Sales; and  
The Financial Vice-President, who coordinates sales and production planning in accordance with financial limitations and desirability.

By **HARRY R. LANGE**  
Vice-President and Controller  
Cutter Laboratories, Berkeley, Calif.

The committee meets each quarter to establish the sales budget for the following three months and for the three subsequent calendar quarters, in order that the company may at all times be projecting its activities one year in advance.

Considerable planning for this quarterly sales budget meeting precedes the actual meeting. Historical analyses are prepared, showing number of packages of given

products sold in similar previous periods, and information is furnished in these analyses as to previous estimates made by the Sales Budget Committee for periods about to be reviewed.

Care is taken to delete from these analyses all items of an insignificant nature in order that the time spent by the committee may be minimized. For example, we know that by confining our estimating work to about 35 per cent of our line we are able to cover about 93 per cent of our sales. Therefore, we spend little or no time as a committee on 65 per cent of the number

of our products, including package sizes, that produce only 7 per cent of our sales.

Sales Budget Committee meetings are scheduled well in advance to permit the development of needed statistics, including plans currently in effect as to future production, estimates of future inventories, and current or future estimates of costs of products which are forecasted to be sold.

The manager of our Production Planning Department attends to answer questions as to future production plans and to reflect decisions, as they are made, into his records in order that production plans may be coordinated with sales plans. Our Market Research Analyst likewise attends to furnish information as to product demand changes and trends, and his opinion as to quantitative sales decisions reached. Managers of producing departments are also available to answer technical questions as to availability of products.

Thus the committee, armed with appropriate statistics and assisted by the information that can be given to us by these specialists, is in a position to develop the sales forecast. This forecast is developed by considering one product at a time and by giving appropriate consideration to the following matters:

1. Current inventories.
2. Previous sales experience.
3. Future demand.
4. Seasonal fluctuations.
5. Profitability of the item.
6. Future product availability.

To further the realization of our estimates we decide on sales promotional activities, recommend as to advertising emphasis, and consider price revisions. Also to further our over-all economic position, we consider the elimination of undesirable or unprofitable products, liquidation of overly large inventories, and frequently approve write-down of values

of inventories of products which fail to meet sales expectations.

By working on one class of products at a time, the estimates of packages to be sold, when completed for that product class, go to the Accounting Department in order that estimated quantities may be transposed into dollar sales, costs, and gross profits. Very soon after package estimates are finished, the committee is supplied with dollar information on those estimates which enables us to evaluate, and revise if necessary, the dollar forecasts established, in relation to actual dollar results for similar previous periods, and gross profits applicable thereto.

The estimates are then given to our IBM Department to be recorded on punched cards. Subsequently, daily reports as to actual dollar sales in relation to budget are published before 4:30 each day for sales reported through that day, together with overage or underage data for that day, and

• Fibrin Foam, used in making surgical sponges, is poured into pans prior to dessication. This is just one of many technical processes closely allied to sales budget by Cutter.

Consolidated Statement of _____		Schedule No. _____								
Division _____										
Period Ending _____										
DESCRIPTION	THIS MONTH		THIS YEAR TO DATE		LAST YR. TO DATE ACTUAL	% TO GROSS SALES				
	BUDGET	ACTUAL	BUDGET	ACTUAL		THIS MONTH THIS YEAR TO DATE LAST YR. TO DATE BUDGET ACTUAL BUDGET ACTUAL ACTUAL				
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FORM 157 REVISED MAY 1948



similar cumulative data for the month. In addition, monthly reports are published on the first of the following month showing:

1. Package and dollar sales budgeted.
2. Package and dollar sales actual.
3. Packages budgeted for production.
4. Packages actually produced.
5. Inventory budgeted for month-end.
6. Actual inventory at month-end.

Each month, as soon as this monthly report is available, the Sales Budget Committee holds a meeting in order that a review for the month just ended may be made and necessary corrective steps taken, and that trends may be quickly noted and the need for appropriate sales or production emphasis or de-emphasis determined.

This sales budget then is the key to all of our financial budgeting. From it we are able to determine the monthly, quarterly, and yearly volume at which we will be operating and the income which will be available to us, that we may in turn establish production cost and other expense levels.

To do a complete sales budget job, production must tie in very closely to sales planning. The quantities that are established by the Sales Budget Committee being immediately transposed into production schedules enable us to tell at the end of each month not only that sales failed to meet or exceeded their forecast, but that production did a better or a poorer job than they should have done. By meeting each month the committee can quickly sense trends as to the need for increasing or curtailing production in order that inventory unbalance may be avoided.

Prior to the first of each year, based on forecasts of sales dollars for the following year, operating expense limits are established. An over-all dollar budget for the year is fixed for administrative expense and for selling, research, and advertising expenses. These expense limitations are established at a figure which, when deducted from our anticipated gross profit, will provide a net profit that is adequate, after taxes, to pay dividends, provide needed capital equipment, and add the proper amount to our surplus. No changes are made to these budgets unless important variations in sales occur, which make such changes necessary or desirable.

In other words, when we know what sales are expected to be and the amount of gross profit these sales should develop, we know, by deduction, the remaining amount that is available for operating expenses. While, for one reason or another, we may not realize the sales that we forecast, and the gross profit therefrom is not forthcoming, our current review of sales trends enables us to promptly take the necessary steps to curtail production and operating expenses. This then permits us to maintain a relative profit on sales we do make, and inventories in proportion thereto.



• Coils inside 5,000-gallon penicillin tank at Cutter Laboratories maintain even temperature of fermenting broth and sterilize tank interior after crude penicillin is harvested.

Our company uses these budgeting principles in other ways which aid in doing a complete management job. At the beginning of each year the president asks his top executives to supply him with a one-year and a five-year outline of their planned accomplishments, not generalized nor merely a reiteration of day-to-day responsibilities.

He asks that they cover specific important goals which, as he puts it, "need lifting above the day-to-day routine," and that they be brief but definite indications of specific goals which he realizes need accomplishment. A deadline is established

as to when those plans are to be in his hands so that he can thoroughly discuss them with the executive in question. He approves or disapproves individual projects and frequently indicates timing as to their completion. In addition, executives are expected to request and approve similar plans from their subordinates, and they from theirs, and so on down the line.

At the end of the year the executive is expected to give a report to the president of his accomplishments under the plan. Thus important activities can be directed along channels that are deemed desirable while providing yardsticks by which executive and supervisory performance can be directed along channels that are deemed desirable while providing yardsticks by which executive and supervisory performance can be measured.

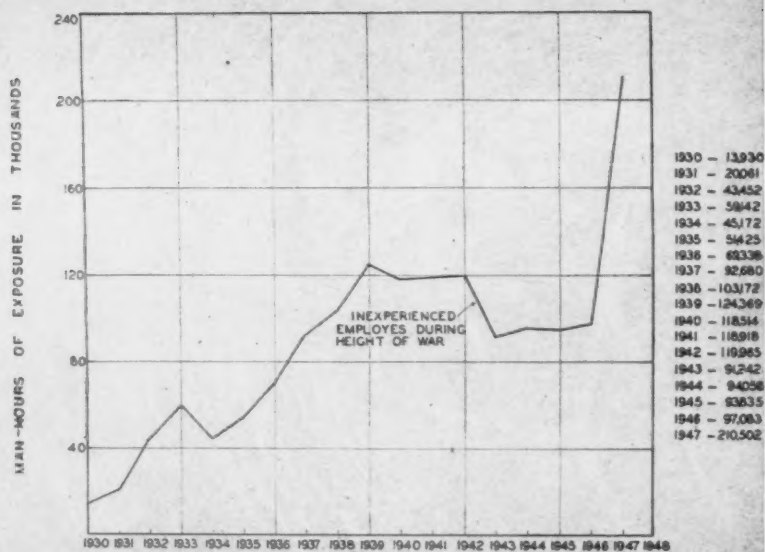
The principles of budgeting are also applied to the "personnel budget," which is a simple, well thought out plan by which the executive is required at the beginning of each year to budget merely the number of people he expects to have in his division at the end of each month, or at the end of the quarter, or at the end of the year.

This budget provides management with an opportunity to modify personnel plans and to indicate where management believes too many or too few employees are being planned for, and again provides an excellent measuring device as to divisional or departmental supervisory performance thereunder.



• The author, Harry R. Lange, vice-president in charge of Finance and Accounting at Cutter Laboratories, Berkeley, California.

MAN-HOURS OF EXPOSURE PER ACCIDENT—UNION PACIFIC COAL COMPANY (1930-1947)



## Company-Wide Safety Program Wins National Awards

By I. N. BAYLESS  
President, Union Pacific Coal Company

**O**RGANIZATION and training, mixed with perseverance and hard work is the basis for the safety program of the Union Pacific Coal Company. That it has paid off handsomely is proved by the fact the mines and employees of the company won seven U. S. Bureau of Mines awards for safety in 1947. Union Pacific's Winton mines worked 587,342 man-hours in 1947 without a lost-time injury, to win the famed Sentinels of Safety trophy. Outstanding mines and individuals were awarded six certificates of honor by the James A. Holmes Safety Association.

During the 16 years that the company, which is owned by the Union Pacific Railroad, has been entered in the Sentinels of Safety competition we have won the trophy nine times in the bituminous coal group, and the question has often been asked, "How do you do it—with mirrors?"

No mirrors, magic nor lucky pennies go into the safety program we follow. Our system has been developed over a period of many years and embraces every employee in the company. The word "every" is used here literally. For example, our first aid training program covers not only miners but all other workers and the members of the supervisory staff, including myself.

Courses in first aid are conducted every six months and new employees who haven't yet had the training are required

to attend classes every night until they are able to pass an examination. If a "student" is unable to pass the test he is given special training until he can do so.

The result of this program is that all but our very greenest employees have received the certificates awarded by the Bureau of Mines and Union Pacific Coal Company for qualifying in first aid.

Incidentally, the courses are conducted under the supervision of the Bureau of Mines, which furnished the original instructor to school company first aid trainers.

The most attractive feature of the company's safety program from the employee point of view is the system of prize drawings conducted both on a monthly and an annual basis.

For administrative purposes, mines of Union Pacific Coal Company, all located in the vicinity of Rock Springs, Wyo., are grouped into six mining districts. Once each month miners gather in the halls of their respective districts to draw for prizes. Only those employees with no lost-time accidents during the preceding month are eligible to participate. However, to stimulate interest in attending, a number of floor prizes are given away with no restrictions as to eligibility.

These gatherings also afford management of Union Pacific Coal Company the opportunity to discuss safety problems

with the miners — and under conditions featuring relaxation and high good humor.

Twice annually, as many of the miners and members of their families as are able gather in the Old Timers' Hall at Rock Springs for the year's top drawings of additional special prizes. Only those with no lost-time accidents are eligible to win.

Occasionally, mine operations or bad weather make it impossible for workers at outlying mines to attend the semi-annual Rock Springs drawings. This problem has been solved by broadcasting the program by direct wire to district meeting halls.

As in the case of the monthly district meetings, the semi-annual affair is more than a drawing: the program includes safety discussions and safety motion pictures.

Not as glamorous as the drawings but every bit as important to Union Pacific Coal Company's over-all safety program are such down-to-earth measures as rule books, safety inspections and safety bulletin boards.

Each mine has been organized into safety sections with each section under the direction of a supervisor of safety. This arrangement has been worked out by the general safety engineer and his assistant and the ventilation engineer.

To guide workmen in the installation of wiring, tracks, machinery and equipment, the construction of clearances and similar mine operations, the company has published a book of standards. This book was nearly two years in preparation and has been revised seven times since its date of publication, July 15, 1923.

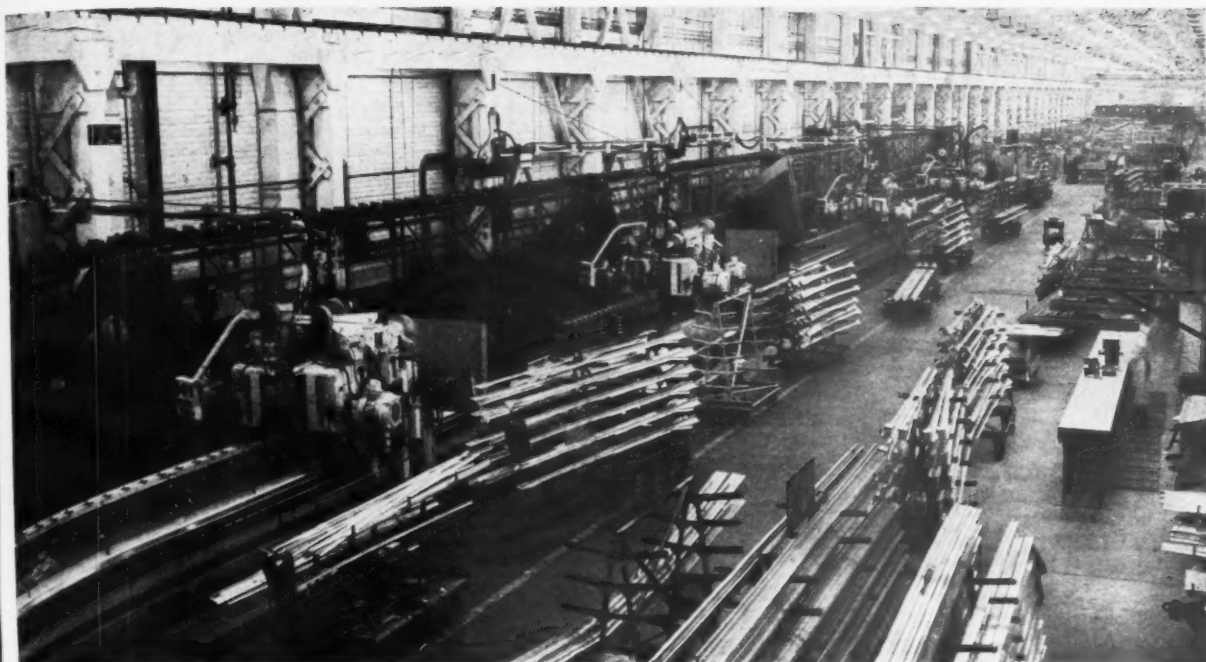
In addition, each employee has been furnished a book of safety rules to observe.

Sometimes the company takes unusual steps to promote a particular safety measure. Whereas miners had been convinced of the advisability of wearing hard hats, hard-toe shoes and protective clothing by the usual methods, there was a departure from routine in furthering the use of goggles.

Each miner's eyes were examined free and he was given—gratis—goggles corrected to his vision. Free eye examinations are still given new employees but miners must now provide their own goggles.

Also out of the ordinary was the founding of Sigma Tau Epsilon, the first Greek letter safety society in the world. Noting that there are scores of college and high school fraternities whose thousands of members wear their emblems with pride, the company formed Sigma Tau Epsilon in 1941 with 43 charter members.

Established for supervisors, membership does not end when a man is taken in and given his key. A total of 10 committees on safe practices, with five or more members on each committee, each serving for one year and thereafter rotated to other committees, study and make recommendations on safety.



• Interior of spar cap department, El Segundo plant of Douglas Aircraft Company. Note the conveyors for scrap metal removal.

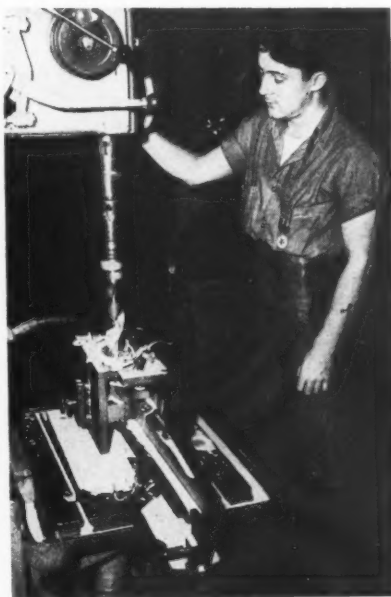
## Busy Machine Shop Floats Waste Away

By V. C. FERGEN, Foreman  
Spar Cap Department  
and  
C. R. WULFSOHN, Ass't Supt.  
Production Control and Fabrication  
Douglas Aircraft Company, El Segundo, Calif.

**R**APID advances in aircraft design in the years immediately prior to and during World War II called for heavier and more complex construction as applied to the main structural members of all major components of the airplane. Particularly was this true of the wing and center section, wherein the main internal beam were designed to be machined from single billets of aluminum alloy material.

These beams are known as "spar caps." Because of the tremendous amount of material to be machined from the raw billet, and due to the variable and complex nature of the cuts, production in large quantities presented a difficult tooling and manufacturing problem.

Aside from the actual production processes themselves, the problem of waste disposal was a major one, and its solution is one that might well be studied by any manufacturer working with light metals. Metal chip disposal is done by a conveyor system which is entirely automatic. It runs the full length of the spar cap department and can remove a maximum of 65 tons of



• Main lug-hole drilled on drill-press.

chips from the building each eight-hour shift.

The first spar caps produced at the Douglas Aircraft plant were machined on conventional mills at an exorbitant cost. This method was soon replaced by a special mill designed and built by company engineers, which provided for full length cuts and incorporated a template following device to permit milling of variable cuts and contours in a single pass.

Changing design and the demand for early wartime production led to further developments of spar cap equipment which eventually progressed to highly specialized milling machines adequate to meet the requirements of advanced design changes and peak wartime production quantities.

Douglas Aircraft Company experts were instrumental in providing much of the preliminary design information necessary to the development of this equipment, which is considered a major wartime development in the aircraft field and contributed largely to the country's expansion in airframe production. Outstanding spar





• Waste disposal conveyors carry chips outside to this hopper where scrap goes into trucks to be reclaimed. Center chute dumps direct; smaller ones are for various metals.

cap equipment is in operation at Douglas Aircraft Company's El Segundo plant, currently engaged in production of the AD-1 Skyraiders and in highly advanced and technical experimental projects for the Navy.

In the spar cap department at El Segundo, major machines are aligned to conform to operational sequence and to permit ready disposal of chips. This latter is handled by a well-integrated system of conveyors. As the chips are discharged from the milling machines they fall into a series of drain troughs running the full length of the department and located alongside each machine. A heavy flow of coolant runs through the troughs constantly, washing away the chips. From the troughs the chips and coolant flow into a sump, from which the coolant is returned to the machines by a pump. The chips which have

been screened out are picked up by an automatic elevator and carried to an overhead conveyor and on outside where a hopper discharges them into waiting trucks for disposal. The operation is continuous and handles a heavy volume of waste metal without interfering with production.

In addition to milling machines, the department is equipped with bending, heat-treating, blasting and other specialized equipment essential to the manufacture of spar caps.

As an example of the advances made in high speed production of aircraft parts, if the conventional methods were applied to a center wing spar cap and they would consume 30 hours of layout and machining time, whereas present machines and ingenious tooling make it possible to produce *eight* parts in 30 minutes. Using this part as a typical example, the following

sequence of operations is necessary to manufacture the spar cap: two 75 SW aluminum alloy, 140" billets from which four parts each are obtained, are placed on a Farnham spar mill where all body cuts are performed. Billets are then moved to the Farnham twist mill for skin face cuts, after which hydropress straightening operations are performed. Parts are then separated into four pieces from each machined billet and moved to heat treating ovens for ageing to the hardened, or ST, condition. Subsequent milling operations are then accomplished in the Farnham splice mill, on a conventional mill for slotting, a drill press for drilling of main lug hole to 15/16" diameter, an end radius mill and the Excellor boring machine for finish bore to 2-inch diameter —1.005, then to the conventional mills for minor details cuts. Finally, parts are burred to break all sharp corners, sandblasted and then sent to final inspection.

### United Starts Cargo Control System

Providing local air cargo shippers for the first time with information as to space available and when their goods will move, United Air Lines inaugurated a system-cargo control plan on July 1. It is an added function of the payload control center which gives passengers instant information on their space requests.

The cargo control section is setting up average loads based on previous experience, according to John S. Brinkman, superintendent of United's Denver payload control center. When the average is exceeded, the station concerned will report to the Denver center where control can act to equalize loads or add extra sections.

### Diesel Engine Clinic For Instructors

A two-day refresher course for college professors who teach diesel engineering in the West will be held August 16 and 17 at the University of California. Jointly sponsored by the Diesel Engine Manufacturers Association, the University, and by the California Research Corporation, a subsidiary of Standard Oil Company of Calif. the sessions will include lectures by several bay area experts, as well as tours of the diesel laboratory at the Berkeley campus of the university, and the laboratories of California Research at Richmond.

Among the local industrial experts who will address the meeting are O. H. Fischer, president, and S. W. Newell, vice president, Union Diesel Engine Co., Oakland; R. A. Hundley, chief engineer, Enterprise Engine & Foundry Co., San Francisco; and W. G. Nostrand, executive engineer, Winslow Engineering Co., Oakland. Professor Carl J. Vogt, of the university's mechanical engineering department, will preside.

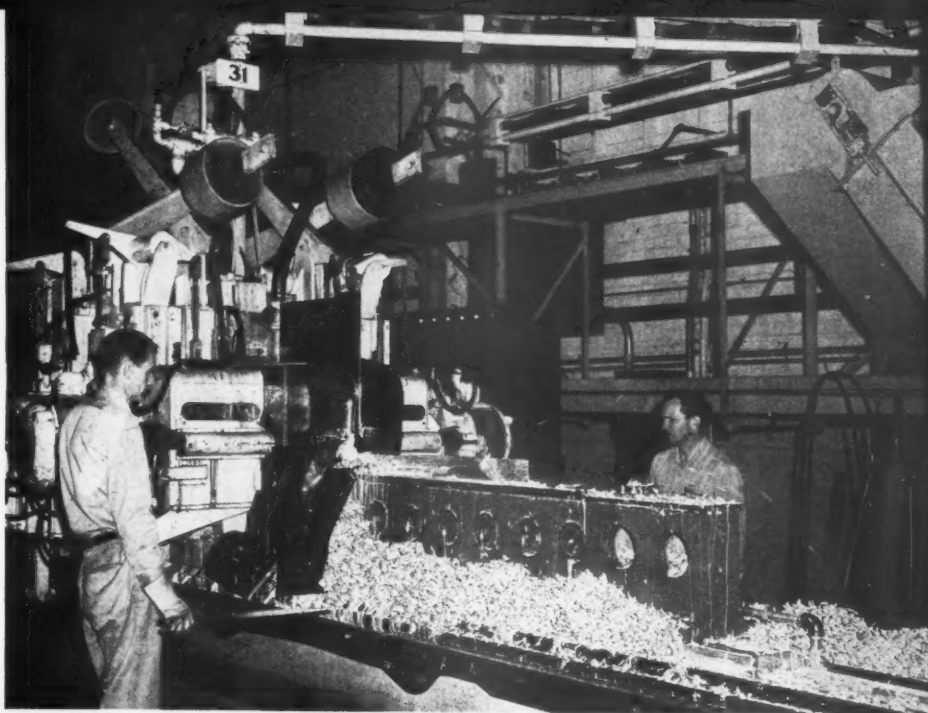
### ESSENTIAL DATA OF THE CONVEYOR EQUIPMENT

	Conveyor	Elevator
SPEED	32 ft. per minute	50 ft. per minute
BELT MATERIAL	2—#458 H.T. chains with paddles between 16" on centers	2—Ewart detachable link chains with paddles (link-belt)
CAPACITY	Large trough—1,280 cu. ft. 1 hr. Small trough— 965 cu. ft. 1 hr. Total—2,245 cu. ft. 1 hr.	500 cu. ft. per hr.
MOTOR	7½ H.P. 1,500 RPM drives conveyor chain through speed reducer	½ H.P. geared head 19 RPM output
VARIETY OF MATERIALS	Two materials can be handled at once as conveyor has 2 troughs. Reason for 2 elevators at end.	1 material



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• Rear view of five-spindle spar cap milling machine shows great volume of chips spewed out while performing body cuts. Rear spindles shown cut vertically and horizontally at same time and are rated at 20 hp., 3,500 rpm. Note overhead conveyor for chips in the background. Such complex machines saved thousands of man-hours in turning out speedy carrier planes for the Navy during war.



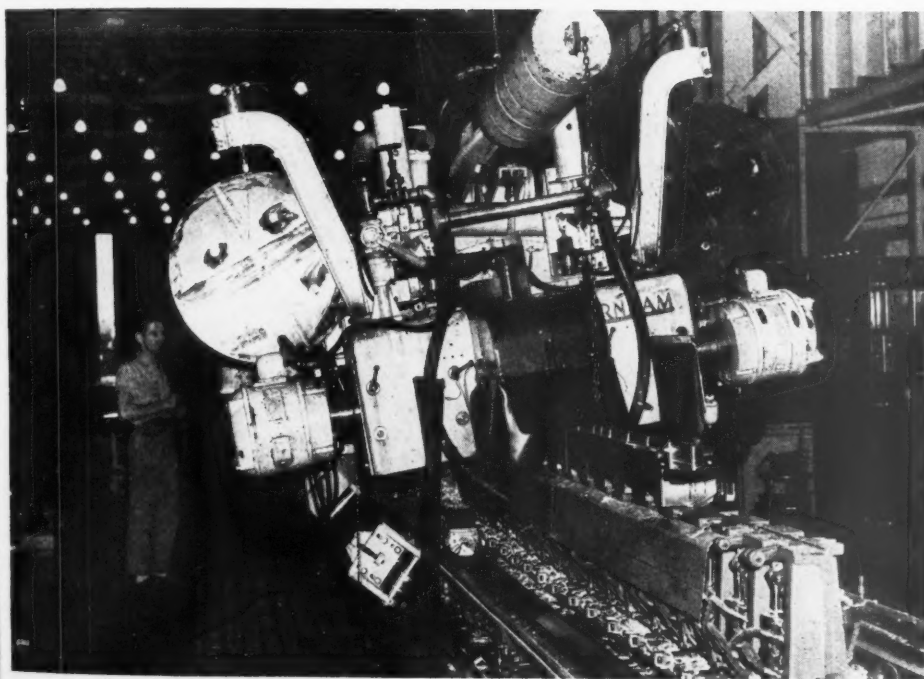
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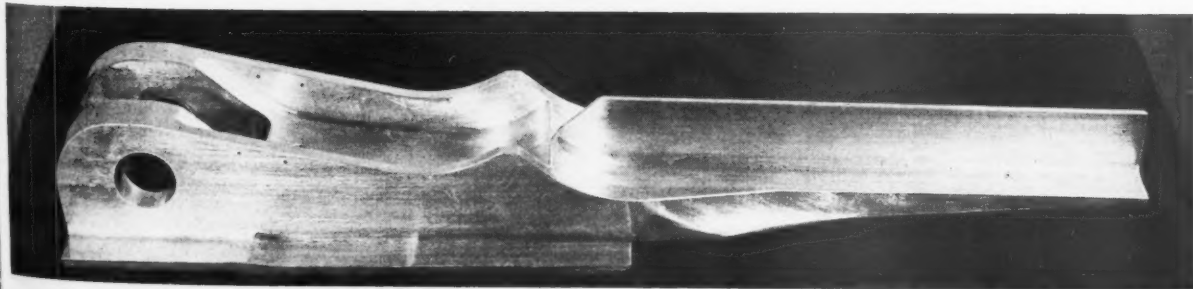
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August, 1948



• Farnham twist-mill has four spindles of 20 hp., 2,900 rpm. Using six-inch cutter this machine can mill vertically, up and down, on 28-ft. spar cap, can start from 0° on one end and twist to 10° on other end. Mill used for spar caps requiring compound curvature or angular cuts designed to conform to wing contours.

(Below) Manufacture of center wing spar cap end like this would require 30 hours layout and machining time if made on conventional milling machine. Now eight take only 30 minutes.



August, 1948—WESTERN INDUSTRY

# How Shell Chemical Avoids Loss-in-Transit Claims

**Three-year study by Traffic Department results in switch from timber bracing in freight cars to inexpensive steel-strapping with big saving**

A STANDARDIZED method of carloading which has reduced losses from damage in transit by 96 per cent in one year would appear to merit the attention of every manufacturer who has more than local distribution. Such a method has been developed by the traffic department of the Shell Chemical Corporation, following a three-year study.

Reduction of damage losses due to rough handling of shipments on long-haul freight trains has been the subject of innumerable surveys through the years, both by shippers and by the railroads themselves, because the amount of money wasted in claim settlements, unmarketable goods and man-hours has been tremendous. The Shell Chemical Corporation have a considerable amount of transcontinental freight traffic and have learned their carloading lesson—the hard way.

In the words of Don Ward, assistant traffic manager, industry generally spends millions of dollars on expensive containers for their products but until recent years has not devoted sufficient attention to the method by which these products were prepared for shipment so as to improve their condition on arrival at destination. Damage claims were expensive, but apparently inevitable. With the advent of newly designed and improved containers for Shell's products, the traffic, also distribution department, began a study which has covered three years and resulted in some amazing savings in money and materials.

## Formerly Used Timber

For years the standard method of securing the load in a freight car had been to brace the load with timbers nailed to the sides and floor of the car. Experienced carpenters, using good quality timbers, evolved elaborate systems of braces that, in theory, would withstand the shock when a carload of drums was "humped." Cost of lumber and dunnage, plus labor, ran as high as \$40 per car and when a shipment left one of Shell's Western plants it looked as sturdy as the proverbial Rock of Gibraltar. Upon arrival on the eastern seaboard, however, its condition was all too often chaotic. Heavy timbers would be found

shattered, drums were dented or split open and "lipped" over each other, and smaller containers were smashed, with valuable—and often hazardous—products spilled all over the place. Naturally, the Shell Chemical Corporation were not happy about this, nor was the Bureau of Explosives or the Interstate Commerce Commission.

It was obvious to Mr. Ward and the other men in the traffic department that with increased cross-country traffic since the war, something had to be done, and done fast. As part of their study of the loading problem they took a series of photographs showing shipments as they were when they left the plant, and again, upon arrival at destination. Each method, each car studied, was tabulated according to type of product, size of container, destination and origin, and the system and materials used in preparing the car. Photographs accompanying this article are taken from the report, which fills three large books.

## Steel-Strapping Tried

Since wooden bracing was evidently not the answer, steel strapping seemed to be the most logical alternate. The side-anchored system was tried first. That is, 55 gallon drums of products from the Shell Chemical Corporation were loaded as the first tier in a car, in three sections—a load at each end of the car, and a doorway load. These were secured to the sides of the freight car by one-inch steel strapping anchored to timbers.

As was customary, a dunnage floor went on top of the drums, and then came a tier of smaller containers, five-gallon cans or buckets, or packaged products. These were also side anchored. The reduction in time and materials was immediate, since where a car braced with timber had cost as high as \$40 the new method cost only about \$7.50. However, upon arrival, shipments were still found in a damaged condition, but not nearly so badly as when wooden bracing was used. The one-inch strapping was partly at fault, because it broke and allowed the cargo to shift. Now, 1¼-inch strapping is used, and this slight additional

strength appears to be sufficient for all purposes.

Mr. Ward admits that he was one of the most ardent believers in the side-anchored method of bracing, but when it became apparent that it was not the right answer he tried another, the floating-load method. Due to the more uniform types of containers used, products of the Shell Chemical Corporation have been shipped by this method exclusively ever since.

A floating load is simplicity itself. The first tier of heavy drums is loaded to fill the car floor, and is then surrounded by a series of steel straps to make it a unit by itself, completely free of any anchoring to the sides or floor. Small upright timbers are placed between the drums and the straps and secured with strapping nails. Dunnage goes on top as before, and then the lighter load of smaller containers, also strapped together as a unit. Thus, when the freight car gets a severe bump the bottom load shifts forward or back as a whole, and the upper tier, moving under its own momentum, shifts at the same time.

The most expensive steel strapping of a carload now costs Shell only about \$18 and damage claims from shipping have virtually disappeared. During the first year since the floating load was adopted as standard procedure, Mr. Ward declared, the reduction was more than 96 per cent. The exact amount could not be estimated because it was impossible to determine how many customers had previously accepted partly damaged goods without filing a complaint.

Interestingly enough, the men in the plant where shipments were prepared, were at first somewhat skeptical that proposed new methods would prove satisfactory. This is understandable, since at first glance it would not appear logical that the sturdy bulwarks of timber they had been using for bracing could be improved on by the use of thin pieces of steel strapping. However, once these people had had a look at the "before and after" photographs used in studying the situation, they became the most enthusiastic supporters of the new system.



• These "before and after" photos are part of the Shell Chemical Corp. study of proper carloading methods. The view above shows a car of products as it was prepared at a West Coast Shell plant. The lower deck of ninety 55-gallon drums was given wooden crib bracing in doorway, according to A.A.R. standards. Upper tiers of five-gallon drums were set on loose dunnage and secured with heavy bulkheads of 1x12s braced with 2x4s and a "K" brace of 2x4s. Numbers on planking were for identification during study by traffic men.

• Two lower photos are almost interchangeable. Actually the one on the right was taken first, on the West Coast, when the floating-load method of shipment was tried. Lower deck of 88/55-gallon drums was secured in two units with two 1 1/4-inch steel straps. Note wooden spacers attached to straps to prevent them dropping if stretched or loosened. Upper deck consisted of 12 5-gallon drums and 20 one-gallon drums, secured in separate units on a single floating platform. Each unit enclosed with wooden sides by 1 1/4-inch steel strap.



• Now take a look at the jumbled nightmare that was found when the same car shown at the left arrived on the east coast. The sturdy 1x12 bulkhead has disintegrated and little beside the "K" brace remains in place. The fact that wooden crib bracing in the doorway was broken out showed car received rough handling en route. Inspectors agreed that bulkhead should have been made of heavier timber and supported by additional braces. Decking should have been nailed to cross pieces. Twenty-nine drums crushed, some products lost.

• This carload arrived at destination in perfect condition. Units were able to shift forward or back according to the direction of shock, and platform deck prevented upper tier from falling between heavier drums below. Report of Shell Chemicals inspectors states, "Floating load method afforded most satisfactory method for protecting lower deck of 55-gallon drums. Perfect condition of this car on arrival and the absence of shifting or damage provides maximum protection to small containers." Both cars studied traveled 3,000 miles.



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# Plomb Tool Plant Finds Many Uses for Compressed Air

**Former tedious assembly jobs are speeded by special devices; pneumatic screwdrivers and other tools operated from three stationary compressors furnishing eighty-pound pressure**

**H**IGH and low pressure compressed air is used extensively from the start to finish, on the quantity production of hand tools by Plomb Tool Company of Los Angeles. The versatility of this power at work becomes evident in a plant tour.

This company was started in 1907 and has been outgrowing itself regularly ever since until the once one-man shop now spreads over several acres. The list of the company's products includes more than 1200 different standard items and hundreds of special tools. About 80 per cent of this production is started in the forge shop and 20 per cent on automatics.

Throughout the entire production process, there are interesting applications of compressed air to be observed including some especially noteworthy ones in final assembly.

## Making Screwdrivers

The operation of placing the ferrule and handle on a screwdriver blade is cited as an example. A small air cylinder on the bench instantly clamps the work in place and then a large air cylinder over the work furnishes the steady, positive pressure to join blade and handle, including the ferrule, in one stroke at the touch of a valve.

In some respects, the method is so simple as to appear obviously as the only way to do this work, but the fact is that use of an arbor press is still more common in the industry than the method described. The hand arbor press takes more time, the energy expended would make the operation impossible for a woman worker and becomes tiresome for a man by the end of the day. These are cost factors to consider just as carefully as the ones of cutting production time of the work in half and improving quality of workmanship that comes from the always-constant pressure from the air piston to assure a uniform standard for each tool turned out.

Adjoining the bench where blades are attached to handles is another device which also employs compressed air for two operations. At this machine, the tool is held in place vertically by a small air piston which applies sufficient pressure on the blade end to hold the handle firmly in place on the

Every machine at Plomb Tool Co. is equipped with an air hose for cleaning work. Punch presses have air lines to clean dies after each stroke. Company estimates that use of compressed air permits three times the production per day that would be possible with the same labor force using manual methods.



• Small air cylinder at right holds part while operator applies even pressure with larger cylinder above to join tool parts.

table of the fixture for drilling of a hole through the top of the handle. As soon as the tool is clamped in this manner, two drills,—one on each side of the handle—are steadily and rapidly fed by compressed air pressure against oil.

The fixture described has these production advantages: two drills, each going half way through the handle at the same time, cut drilling time in half; the oil-air feed permits faster speed in drilling because of the even, steady pressure which is possible; life of drills is more than doubled by the use of controlled feed rather than hand feed. This method of drilling enables the operator to turn out three tools in the time that it would take to do one by conven-

tional methods and there is the extra dividend of better workmanship.

The two assembly operations are typical of other air-operated devices used in that work. Air hammers are used for attaching hammer handles, an air piston is used topeen a small ball over the spring in the ratchet wheel of wrenches, cams are riveted to the body of a ratchet wrench by compression from an air cylinder and there are other such devices. While these various steps could be done manually rather than with the aid of compressed air, the production time would require two to three times longer. More frequently than not, the time savings permit three times the daily production which would be possible with the same labor force using manual methods.

Standard pneumatic tools are, of course, being used by the company as well as these plant-designed special air-operated fixtures. An illustration of this is seen in assembly of ratchet wrenches. The wrenches are placed in a long row on a slotted bench. Girls using air-operated screwdrivers swiftly move down the row to put covers on the ratchet body. This is a production job which is tremendously accelerated by the application of pneumatic tools to the work.

## Three Compressors

Assembly consumes a relatively small amount of the compressed air produced for the entire plant. The company has three stationary, single-stage horizontal air compressors, which are centrally located. Two are of 315 cubic feet per minute capacity each and one of 150 cubic feet. Pressure on the plant lines is maintained line from the compressor room is of 4-inch at around 80 pounds per square inch. Main diameter with pipe sizes tapering down as the air reaches points of application.

Every machine in the plant is equipped with an air hose for cleaning work and all of the many punch presses have compressed air which cleans out dies after the completion of the stroke. A cam arrangement on each press automatically turns the air on and off. Unless the dies were cleaned, scale would be pounded into the next piece.



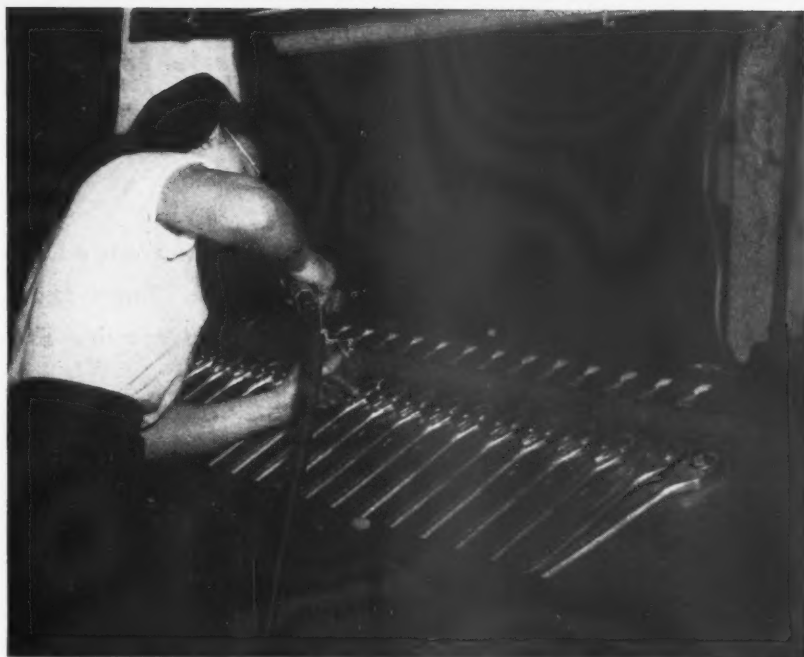
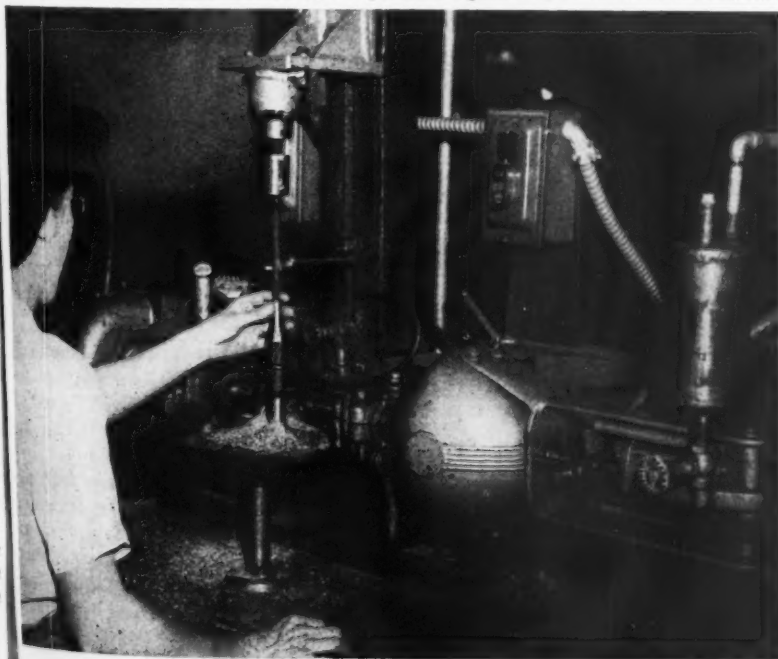
The fact that compressed air performs this die cleaning job so simply, economically and, most important of all, safely, makes the application commonplace in virtually all plants doing similar work.

Some of the furnaces at the presses and also in the forge shop have individual blowers and others get low pressure air from a central plant which is comprised of three 3-stage centrifugal blowers of 250 cubic feet per minute capacity and one 3-stage blower of 350 cubic feet per minute. Pressure is 24 ounces per square inch. On many of its forging and punch press operations, the Plomb Tool Company is using this low-pressure air for cleaning dies, etc. rather than air from its high-pressure lines. The higher pressure is not always necessary and the low pressure gives the desired volume at a lower cost.

There are numerous other uses for compressed air in the Los Angeles plant of the company. Trouble-free air hoists are used in the heat treat. Small pneumatic grinders are used for die setting and touch up. Chipping hammers and paving breakers are used in maintenance work. Air lines serve every working area of the plant.

In the final analysis, Plomb Tool Company relies upon compressed air so extensively because it is a power source which can be conveniently stored and conveyed to the point of use, it requires no insulation against heat loss in transmission, involves neither fire nor shock hazard and is ideal power for a wide variety of work. It is the kind of power source which fits in well with the plans of a company constantly seeking improved production methods.

• Head tool is held in place by air piston pressure on blade while two drills make hole for handle top. Drills are fed by air pressure against oil in the feed mechanism.



• Covers are speedily attached to ratchet body of these wrenches by use of air motor turning a screwdriver. Slots in bench hold tools as worker moves rapidly along line.

## M & M Industrial Relations Conference

The annual industrial relations conference of the Merchants & Manufacturers Association of Los Angeles will be held October 25-28 at Palm Springs. Conference leaders will include:

Garret L. Bergen, divisional vice-president and personnel manager, Marshall

Field & Co.; Lemuel R. Boulware, vice-president, General Electric Co.; Samuel L. H. Burk, director of industrial relations, Pittsburgh Plate Glass Co.; Professor Peter F. Drucker, Bennington College, Vermont; Lounsbury Fish, Standard Oil Co. of California; Glenn Gardiner, vice-president Forstmann Woolen Co.; C. F. Hawker, vice-president in charge of manufacture, Armstrong Cork Co.; Harwood F. Merrill, editor, Modern Industry; John H. Nelson, Merchants & Manufacturers Association; William P. Reed, president, Ross Federal Research Corp.

## Shell Develops Synthetic Varnish

Various paint manufacturers on the Pacific Coast and elsewhere are testing out a new synthetic varnish developed by Shell Development Company in their laboratory at Emeryville, Cal., based on glycerol alpha allyl ether, made entirely from petroleum. It makes possible the use of paints and other protective surface coatings without using natural oils, but paint chemists do not believe it will replace vegetable oils to any great extent in the immediate future.

It is reported to be resistant to chemicals and have good wearing qualities, thus making it attractive for floor finishes, and its durability makes it desirable for exteriors. The oxygen-convertible alkyd resins used for the varnish were synthesized from petroleum as the only required source of organic matter by reacting glycerol a-allyl ether with phthalic or succinic acids under conditions to form polyesters.

# Sanitation Problem Licked By Use of Ceramic Tile

**New Berkeley plant of Challenge Creamery has acid-resistant walls and floors that are both easy to keep clean and require little upkeep**

ONE of the largest installations of ceramic tile in the West was completed recently with the opening of the new Berkeley, California, plant of the Challenge Creamery & Butter Association.

The association represents more than 30,000 small dairy farmers allied in a federation of 29 individual cooperative creameries throughout the West. The new Berkeley plant, using dairy products from Napa, Solano, Marin and other Bay area counties, replaced an older one in Oakland to meet increased demand for Challenge products in the area.

That Challenge engineers are of the sanitation benefits of genuine clay tile is evidenced by their selection of this material for the new plant. A total of 12,600 feet of glazed tile were set into walls and ceilings, with another 13,100 feet of quarry tile on the decks.

Challenge - Berkeley contains 45,000 square feet of floor space in the main building, with a power house and garage adjoining. Plans call for addition of a \$100,000 ice cream manufacturing plant within a year, according to E. A. Everson, Berkeley manager. Packaging of cottage cheese will be started in the near future, and ice cream will be made in the same plant area in a limited way until the separate structure is erected.

Cleanliness is of paramount importance in a plant processing and distributing dairy products, and the new home of Challenge in Berkeley is considered by the association as the nation's most modern center for milk and dairy foods. An electric switch panel in the processing room controls virtually every piece of machinery, so that the whole operation is automatic. While no unusual equipment is used, every

device is the latest model available, and the reinforced concrete structure presents a picture of gleaming tile and burnished stainless steel, with lots of sunlight.

In the receiving room, filler room and laboratory, where sanitation is especially necessary, cream-colored glazed tiles cover ceilings as well as walls. Tiles to the ceiling cover the walls of the processing room, and in the bottling, can washer and milk cooler room tiles are used as a wainscoting to a height of 4½ feet.

## Acid-Resistant

Throughout all departments, including shipping and storage rooms, six-inch quarry base tiles rim all the deck areas. Quarry tile is the trade term for a hard-finish tile, usually ⅝ to one inch thick, having a natural dark red color, and an absorption of only about 2 per cent. Due to the constant presence of milk, which contains lactic acid, a special acid-resistant grouting material called "Tegul" was used throughout.

Several types of conveyors are used in the Challenge plant. The association pioneered the use of waxed paper milk cartons in the West, and while these are not heavy they do present a storage and handling problem. A rubber conveyor belt is used to move corrugated boxes of milk cartons from the storage room on the ground floor to the second floor, where the individual cartons are put into a gravity-feed system that drops them into the filling machines below.

Filled milk cartons pass out of the filling machines on a chain conveyor, and are loaded into wooden delivery boxes by hand. Just after leaving the filling machines the cartons pass under a high-powered electric light located close above the carton tops. An operator can tell at a glance whether each carton is correctly filled with milk since the light penetrates the heavy waxed paper enough to cast a shadow line. No glass containers are used by the Challenge association.

• Bottling room at Challenge plant shows tiled walls. Note milk-carton chutes from storage direct to machines. Large window at rear above is visitors' viewing port in lobby.



"Three factors — basic cleanliness, ease and certainty of maintenance, and durability — controlled our decision to use tile so extensively," said Carl B. Tetherow, Challenge engineer who followed the construction program from the drawing boards to its final completion. In commenting on this basic "must" material for dairy installations, Mr. Tetherow added that Challenge studied the project carefully for months and decided that glazed tile for walls and ceilings, and lactic-acid resisting tile for floors had no rival in the building material field for this purpose. The added precaution of using tiles on the ceilings in some rooms was because of the particularly exacting sanitation factor.

#### Pocatello Plant Next

Similar tile will be used extensively in the firm's next big construction job, a modern plant now in the planning stage for Pocatello, Idaho, according to Mr. Tetherow. The Berkeley plant was built by the general contracting firm of Christensen and Lyons, Oakland, and tile work was done by the P. & E. Tile Company, Los Angeles.

An unusual feature of the new Berkeley building are large plate glass windows opening off the second-floor lobby. Here visitors may view almost the entire operation of bottling and processing milk from one spot.

The Challenge association of cooperative creameries consists of approximately 50 creameries, owned and operated by 29 individual cooperatives covering processing areas in seven Western states. It has 14 sales outlets comparable to the one in Berkeley, although the latter is the newest and most modern. Owned and operated by the small farmers who actually milk the cows, the association's sales volume last year topped \$70,000,000.

#### Umpire System Adopted

The impartial umpire system has been adopted by 38 southern California furniture manufacturers, members of the Furniture Employers Council of southern California, by agreement with local 576, United Furniture Workers (CIO).

#### Consolidated Western

Consolidated Western Steel Corporation is the name under which the amalgamation of Consolidated Steel Corporation and Western Pipe & Steel Company of the new amalgamated organization which will succeed Consolidated Steel Corporation and Western Pipe & Steel Company. Names of the officials in the new set-up have not yet been announced. Purchase of Consolidated by United States Steel Corporation has finally been approved by the U. S. Supreme Court. Consolidated had bought out Western more than a year ago, but these two companies had not been merged into a single organization.



• Quarry tiles on floors of processing room withstand lactic acid and constant wetting. Tanks in background are pasteurizers. Control panel is at right behind square pillar.

#### New Colorado Directory Shows Industrial Gains

Fifty per cent of the manufacturing concerns listed in a new directory issued by the Colorado Resources Development Council, Inc., came into being since 1940. A total of 1,200 firms are listed.

Research for the new book was done by the Bureau of Business Research of the University of Colorado, directed by Henry C. Moore. It reveals that industrial growth in the state began its ascent under the stimulus of wartime demands, and now includes items ranging from burlap bags to prefabricated houses. The state now has nine book publishing firms, eight cosmetic manufacturers, and Denver is the home of the largest manufacturer of luggage in the country. Nine pottery plants utilize native products, there are 13 steel fabricating plants, and 23 producers of electrical machinery. Among the unusual firms listed is the world's largest manufacturer of trout flies.

#### Naval Officers Study Industrial Problems

Fourteen Pacific Coast industries have opened their doors this summer to 14 Naval Supply Corps officers, presently enrolled in a two-year Graduate School of Business course at Stanford University.

The program, under sponsorship of the Naval Industrial Association, is designed to acquaint the officers with current business practices and to further mutual understanding between the Navy and industry of production problems.

The 14 supply officers have finished the first year of business training at Stanford

and are spending nine weeks this summer studying all phases of industry. Each officer has selected a specialty, such as purchasing, transportation, accounting, and inventory control, and is given opportunity to study his own particular phase.

The industrial training program will end on September 25.

Industries selected for the training program include American Car Company, American President Lines, Bethlehem Steel Company, Columbia Steel Company, Crown-Zellerbach Corporation, Matson Navigation Company, Santa Fe Railroad, Shell Oil Company, Southern Pacific Company and Standard Oil Company of California, all in San Francisco; Food Machinery Corporation, San Jose; General Metals Corporation, Oakland; Richfield Oil Company, Los Angeles, and Pacific Car & Foundry Company, Seattle.

#### Northwest Wages Are Ahead of Living Costs

Average hourly earnings in the Seattle-Tacoma area has increased 14½ cents over a year ago, according to a survey by the Industrial Conference Board, Tacoma. Using February as the month for comparison, the report shows hourly wages averaged \$1.278 in 1947 and \$1.433 in 1948, an increase of 12 per cent, while the cost of living in the Seattle-Tacoma area went up only 6.8 per cent. The national wage average for February, 1948, was only \$1.287, or 14.6 cents less than the area covered in the report.

Largest increase in employees' earnings occurred in the lumber industry.



## NEW PRODUCTION TECHNIQUES

# Versatile Molding Jacket Saves Time and Money

**I**N WORKING out a solution to a plant production problem Western Light Metals of Spokane, Wash., appears to have brought forth a development which will prove to be useful to all of the metal casting industry. Considerable metal was being lost when the wooden jackets customarily used burned through and permitted runouts to occur in the sand molds.

Operations at the Western Light Metals plant are confined exclusively to the casting of aluminum, and in finding a solution to the runout problem first thoughts were directed toward something that could be produced incidentally during the course of normal plant operations. The resultant design was an aluminum jacket of unusual flexibility in all phases of handling.

### Basic Unit Is Cast Plate

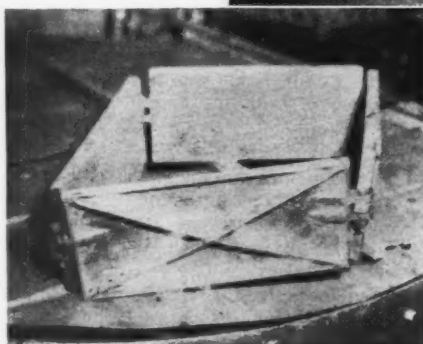
The basic unit is a cast aluminum plate 12 inches wide and made up in various lengths from 12 to 32 inches in 2-inch increments. The mold face of the jacket plate is smooth and rigidity is supplied by a flange on the outside face, continuous on all four sides and two diagonal flanges. A single stud with bolt hole extends from one end of the plate and two studs, also with bolt holes, from the other end.

Jackets can be assembled from the basic plate units in any combination of sizes that is needed in the foundry at the moment, the single stud of one plate end fitting in between the double stud of the adjoining plate end. A machine bolt, slightly under the size of the holes in the studs, is run through the three studs and cinched with a nut. Four plates assembled in this manner form a jacket which can be slipped over the sand mold just prior to pouring of the molten aluminum.

### Variety of Sizes

The aluminum jacket eliminates the necessity for having separate jackets for each mold taper by the simple expedient

• Close-up of aluminum molding jacket shows flanges, and sections as required. Studs used to join Over-sized bolt holes allow taper as needed.



• Six flexible aluminum jackets in use (front row) may be compared with older cast iron jackets (right foreground and rear row). Iron ones are rigid and each size mold required separate jacket. Aluminum jackets are also much lighter to handle and easier stored in pieces.

of oversize bolt holes in the corner studs. The hole in the single stud on each plate is slightly larger than the bolt used which permits the assembled plates to assume any taper to fit the mold. With a variety of plate sizes any size jacket can be assembled from a square 12 by 12 to a square 32 by 32 with intermediate squares and rectangles.

When not in use the jackets can be disassembled and the plates stacked in a relatively small place for storage. When assembled the jackets are light and easily handled. They are not subject to burning through as are wooden jackets, and this one feature has resulted in a considerable saving at the Western Light Metals plant. The jackets are also not subject to warping from the effect of heat.

Early this year when the jacket was first being developed, molds were made

up and set near the pouring operations. When a pour had been completed any remaining molten aluminum was poured into the jacket plate molds so that a supply was gradually built up in incidental operations. Later a permanent mold was made and the plates are being produced in quantity, as plant time permits.

### Improvements Planned

Several improvements are planned for the future. The principal change will be substitution of a pin for the machine bolt and a snap lock fastening substituted for the nut. This change will speed up the assembling and disassembling of the jacket. Plans are also being made for production of a cast aluminum bottom board to replace the wooden bottom boards now in use, since the aluminum jacket has proved to be so successful.



# Gang-Cutters Treble Output in Milling

**A**N OLD idea has been adapted to modern calculator production with use of a master cam to cut the Friden counter oscillating cam on a hand mill. An oscillating follower pin is set into the master cam which governs movement of the part against the cutter. The master cam, moving back and forth, duplicates the master cut in the counter oscillating cam part which is made of Tobin bronze. The high speed cutter was removed in favor of a Carboloy cutter, permitting increase of the spindle speed from 1500 to 4000 rpm and an increased production rate in excess of 180 parts per day on two hand mills.

The Friden Company are proud of their tool engineering department for the development and construction of a 20-gang carbide cutter for the milling of Friden carriage frames. Frame parts are fabricated from extruded 17ST Alcoa aluminum alloy.

Opposition had been voiced from all sides by engineers consulted on the advisability of constructing such a cutter unit. Possibility of chip congestion was the biggest complaint, but this was overcome through use of a high pressure fluid and careful staggering of the position of the cutters. A chip catcher and strainer was also designed to separate the chips from the fluid.

The cutter arbor is rigidly supported by a center bronze bearing which in operation is cooled with an oil feed. A flywheel is mounted at the rear of the spindle giving a smooth flow of power of eliminating vibration.

The milling cutters are approximately 6 in. in diameter, 8 teeth each, and are tipped with No. 882 Carboloy. One cutter body for step milling is as narrow as one-tenth of an inch. The axial positive rake is 10 degrees with a helical rake of 7 degrees. All finished sizes are controlled by locating from the inside surfaces of the frames. After the first operation, the part is reversed and clamped vise-like in position and the final machining of the part is completed. Hold-down studs are slotted to receive grip bars which in turn are clamped down upon the work by application of air pressure.

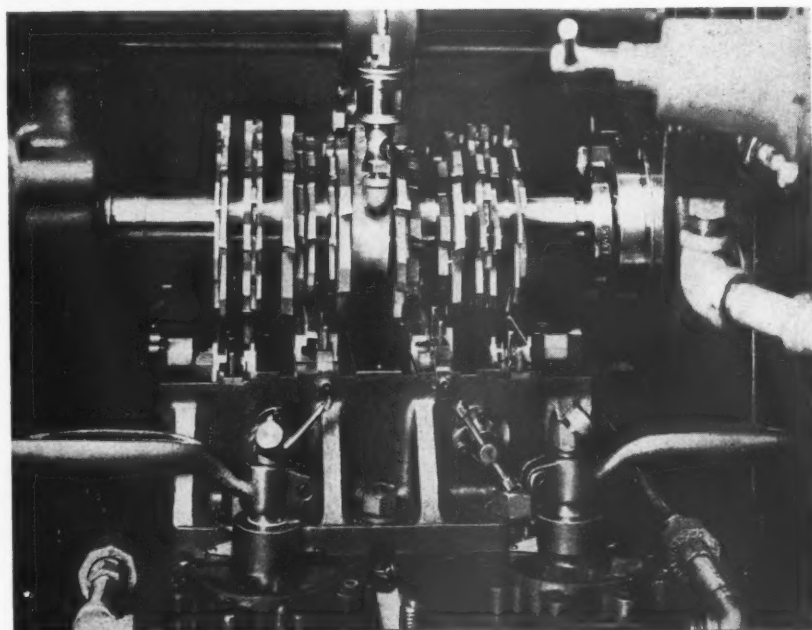
Cutting, by the climb method and at a speed of 650 rpm, is not as fast as is the usual practice for Carboloy, but a comparison with former production figures shows that two fixtures produced only 35 parts each per 8-hour day while now 110 to 120 complete units of two parts each are completed each 8-hour shift.

Another interesting development by the Friden tool engineering department has been the construction of an index-fed high speed duplex milling machine for automatically cutting gear teeth in both upper and lower sides of the add-subtract gear, simultaneously.

Parts were at first made on a hand-operated machine, cutting 20 teeth, 10 in each end of a spool shaped part. This slow and tedious work, on a hand operated milling fixture and a hand-operated cutter head, permitted a top production of only about 55 pieces per hour.

The new machine will produce 150 pieces an hour. The operation is accomplished by placing the part on a vertical arbor and indexing into position by a hand lever, thus loading the part onto the work arbor of the machine. The operator presses a switch button, and the machine starts cutting the gear automatically with two cutters; one at the top side, the other on the underside of the gear and at the opposite end; thus cutting 10 teeth at each end of the gear, simultaneously. This two-cutter action produces the desired result, forming the cutting burrs on the inside of the gear teeth where they can be easily removed in a turret lathe operation that follows.

• Carboloy-tipped gang-cutters used to mill carriage frames by the Friden Calculating Machine Co. Shown are cutters, airlocking device and central arbor, rigidly supported by a bronze center bearing. Bearing is cooled by oil feed. Cutters are 6-inch diameter.



These burrs were formerly formed on the outside of the teeth by the one-cutter method and required considerable time for removal by hand scraping.

## Furniture Cost Lowered By Electronic Process

First use of electronic welding on the West Coast for fixing fabrics on upholstered furniture has been developed by the Craft Furniture Manufacturing Company, Santa Monica. The firm specializes in production of sectional chairs covered in plastic fabrics.

All stitching of the upholstery is eliminated by the use of a high-frequency generator, and the resulting juncture of the fabrics is much stronger and gives a superior tailored appearance, according to Claude B. Shellabarger, Jr., who developed the idea in collaboration with the representatives of Boltaflex, the plastic material used by the Craft company.

No adhesives are used in the high-frequency process, the plastic material being fused together wherever joining is desired. Elimination of sewing has made possible a reduction in prices, according to Craft officials.

An unusual model featured by the company, and upholstered by the electronic welding method is an occasional chair intended to retail at \$29.95. The plastic material used is webbing in three-inch strips that is fabricated entirely by the welding process. The chair frame is also made so that the webbing can be placed in position and the piece still may be shipped in knocked-down condition for assembly by the retailer.

# New Cargo Handling Plan Lowers Marine Shipping Costs

**Alaska Freight Express Converts Former Navy Barges to Meet Bureau of Shipping Requirements; Cargo Palletized**

**A**FTER four months experience with an improved cargo handling installation in one of four freight carrying barges, officials of the newest water transportation organization operating between Puget Sound and Alaska are sufficiently well pleased to plan installations of stern-loading in each of the remaining three barges as soon as the barges can be spared from service.

The cargo handling system, which represents a considerable departure from usual practices, includes the installation of two, portable, three-ton, electric hoists between-decks, the extensive use of fork trucks in

handling cargo, not only on the pier, but on the barge as well, and complete palletization of all incoming cargo on the pier.

Transportation of freight from West Coast ports (principally Puget Sound) and the Territory of Alaska has long been a point of serious contention between Alaskan consumers and producers in the United States. Rates have been high, delivery has been uncertain and dependent upon the vagaries of weather, union dispositions, and availability of equipment, and damage and pilferage losses have been referred to as being disproportionately high. Into this discouraging picture there came a year ago

• An Alaska Freight Express barge at dock, showing deck cargo of timber, passenger cars, trucks and trailers. These are covered with tarpaulins before tow-voyage starts north.



Wherever materials are to be handled, there some business organization is either making or losing money, perhaps an amount large enough to mean the difference between profit or loss on the entire operations of the company. For that reason, "Western Industry" provides a continuous editorial service to its readers on materials handling developments and problems. The accompanying article is another of "Western Industry's" regular features on the subject of materials handling.

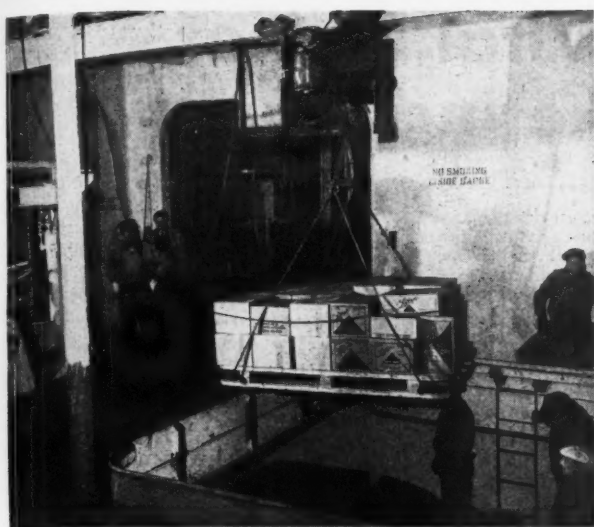
a new common carrier with a number of ideas which had grown out of wartime experience with transportation of military supplies to Alaska.

In place of the customary steamship, the Alaska Freight Express Corporation uses as its principal items of equipment four covered barges towed by seagoing tugs, which are chartered from Ocean Tow, Inc. With this complement of equipment it is possible for two barges to be en route while two barges are being loaded and unloaded at the terminals, resulting in material savings of time and equipment use. This is typical of the methods which have been adopted toward the end of attaining material reductions in the cost of transporting freight.

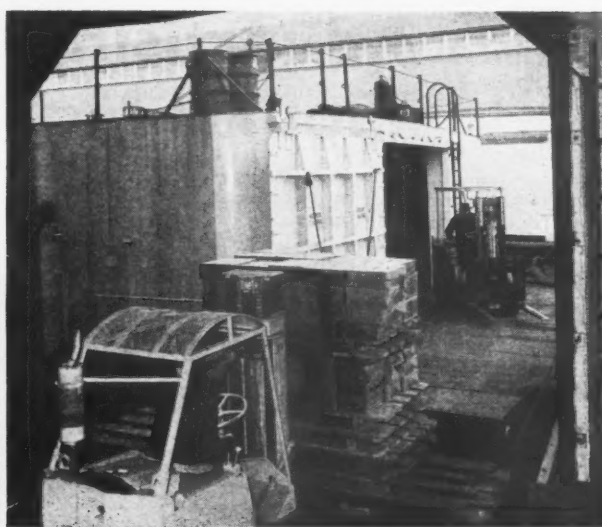
These barges are former Navy YF barges intended for Navy use which have been rebuilt to meet Maritime Commission requirements. They are moulded, covered units 260 feet long, 48-foot beam, and 15 feet deep. They have double hulls, and draw 10 feet 8 inches with a cargo of 2,600 long tons. Rates, incidentally, are based on weight tons alone rather than a selection between weight and cube. This one factor has resulted in some savings because it speeds up the handling of incoming cargo at the pier gate.

The lower hold is divided into eight separate compartments, each of which is reached from one of the eight hatches. Between-deck cargo space is divided into four compartments, each reached from two of the eight hatches with the addition of a clear aisle from the forward to the after compartments. All of the cargo handling facilities which are described in following paragraphs were installed between-decks. Hatches in holds numbered one and three are 12 feet by 14 feet, and those in holds numbered two and four are 12 by 16 feet.

Three side doors in the steel superstructure covering the between-deck cargo space have been sealed and welded in a closed position to afford greater protection to the cargo. The top deck is clear except for



• Overhead electric hoist on monorail lowers palletized cargo into barge hold. Rails are 12-inch "I" beams. Hoist has remote control to allow operator clear view of the cargo and hatch.



• Fork trucks are used both on docks and on barges. Cargo is palletized on pier and shipped as unit, saving handling and damage en route. Barge side forms gangway, and is secured under way.

hatch covers and stanchions which have been added to aid in securing deck cargo, consisting principally of automotive vehicles, lumber, and construction equipment.

Shortly after scheduled sailings were begun last December, Barge No. 730 was laid up for several weeks to permit the installation of special cargo handling facilities. One of the chief reasons for making the installation was to reduce the exposure of cargo to the elements in the course of loading and unloading during inclement weather. During good weather the additional facilities permit the use of larger longshore gangs and speed the loading and unloading operation. The facilities are also an integral part of the palletization which is maintained throughout all cargo handling.

In each hold under the centerline of both hatches and abeam the barge, positions were prepared for a 12-inch I-beam. Four positions were prepared and two beams are actually in use. The beams are about 39 feet long, made up of three removable sections so that either beam may be installed in any one of the four holds. They are used as monorails, carrying a three-ton electric hoist which is employed to lower cargo into the bottom holds or to stack cargo on the hatch covers. For handling heavy loads both hoists may be mounted on a single rail in which case a load maximum of five tons is used.

To feed the between-decks hoists a stern loading operation was most practical, since the clear aisle already existed the length of the four holds. A doorway 10½ by 12 feet, clear height and width, was cut through the after bulkhead of the superstructure, and a sliding door, hung on rollers from the top. The after deck was built up several inches with timbers to

bring it level with the bottom of the doorway, and two special loading platforms were fabricated and installed one on each side of the after deck.

The loading platforms on the after deck are 40 feet wide by 20 feet long, are framed of steel sections to fit the barge sides, and are hinged along the inboard side so that when not in use they can be folded over onto the deck. When in position for use they permit a fork truck being operated on the barge to be driven right to the dock side.

Palletization of cargo takes place in the pier shed as cargo is unloaded from incoming vehicles. As the cargo is unloaded it is stacked on pallets, of which a large supply is maintained at all times on the pier. All cargo, whether it be sacked cement, groceries in cartons, or household appliances, is stacked on pallets. Vehicles, lumber, and heavy equipment over pallet size are exceptions to the rule, of course. Loaded pallets are stacked in the pier shed by fork trucks according to destination.

When a barge is in port and ready for loading, the palletized cargo is transferred to dockside by fork trucks. For the stern loading operation a platform base for the pallets is set on the dock opposite the loading platform on the barge. At low tide it is relatively simple for a fork truck operating on the barge to pick up a pallet from the dock by using a high position. At high tides, when the barge may be riding slightly above the dock, the platform is built up by three or four empty pallets which raise the load to a point where it can be reached by the truck on the barge.

If cargo is being loaded in one of the compartments of the lower hold, the fork truck takes the pallet down the center aisle to the hold, where pallet and load are picked up by the electric hoist, shifted over

to the hatch and lowered to the deck below. There it must be manhandled to final position unless it is to go directly under the hatch. Four-wheeled hand dollies are used to assist in the early stages of loading.

Cargo loaded by the stern operation between-decks is stacked in final position by the fork truck, except for the one-third or less in each hold which is stacked on the hatch cover. In these cases the electric hoists are used to advantage. With sufficient crane equipment it is possible to work all four holds at one time. Any two holds may be worked by the stern loading system, while the third is worked by a motor crane parked on the top deck, and the fourth by a stiff-leg crane on the dock. In stormy weather all cargo may be unloaded without removing the hatch covers, but using the stern loading system only.

The relatively shallow holds, not over 12 feet from deck to underside of deck beams, lend themselves particularly well to palletized loads and the use of fork trucks in stowing. They also reduce the amount of damage occurring in transit since the weight on any bottom tier is definitely limited. The electric hoists are operated by remote button control units which can be carried to a side of the hatch not used in the loading operation, giving the operator a clear view of the work.

Once a barge is loaded, the hatches and rear door are made fast and sealed. The barge is taken in tow by a tug at the end of 1,500 feet of line. No personnel remains aboard the barge from the time loading is finished until unloading begins. In less than a year's operation the carrier has been able to maintain an unusually low record of damage and loss claims. During the summer months complete round trips have been accomplished in as little as 30 days, including loading and unloading.



# Advertising Vital Part of Sound Marketing Plan

**P**RECEDING articles in this series have discussed firms that have set up a sound foundation of engineering and design, only to neglect the equally essential studies of markets and merchandising methods.

Now we advance to the company where sound market planning has been combined with good production methods, but where advertising fails to follow the marketing plan.

It should be apparent that advertising can be fully effective only when it is a natural projection of market planning, and only when they are so aimed that the advertising campaign does not go in one direction and the sales promotion in another. Many companies will find it hard to imagine that such a condition would exist, but recent efforts on the part of some experienced firms supplies convincing proof.

In a carefully coordinated program the advertising looks much bigger and more impressive to the dealers than it actually may be. That's because they are conscious of the advertising at every point, and are putting it to work in their own behalf.

Nothing is more wasteful than the lack of proper merchandising of an advertising program which is, in effect, a failure to cover "all the bases."

Advertising really becomes the final step in a program that starts with product and includes packaging, distribution, dealer incentive, dealer helps, displays and promotion by salesmen.

Recently a newspaper called on one of the large brokers on the Coast to find out how the paper could assist in merchandising the large space campaign that was starting shortly. Imagine the amazement of both the broker and the newspaper representative when the broker admitted exasperatedly that he didn't know there was an advertising campaign!

Long before the advertising is prepared and placed, the marketing program has established these factors: the nature of the market; the extent to which it is to be developed; the channels through which such development is to take place. Advertising is aimed at the same market—so it is only logical to merchandise that advertising to distributors and dealers before the product ever gets a chance to be sold to the buyers. Sales promotion generally leads to the buyer through the channels of distribution, while the advertising reaches him directly. What makes better sense then, than that the two be as closely integrated as possible, that the retailer and the wholesaler be sold on the advertising campaign as well as the product.

Third of a series of articles prepared by West-Marquis, Inc., Pacific Coast marketing and advertising counsel. Previous articles discussed market analysis and the selection and development of markets.

It is always easier to become enthusiastic over a beautiful space campaign than over the maze of dealer helps, promotion pieces, point-of-purchase displays, and the effort and push that it takes to use them properly. But the space campaign (or radio or billboards) is only the beginning, and unless the other spade work is done, a considerable part of the advertising dollar is wasted.

Conditions vary, of course, from one industry to another, from one company to another, and many budgets will permit of only limited exploitation of the almost innumerable types of sales helps. But most consumer goods campaigns can make profitable use of many of the following "tools" in common use today, though the list is by no means complete:

1. Merchandising the advertising campaign to the dealers, through
  - (a) Trade publication advertising;
  - (b) Folders, reprints, or other special mailing pieces;
  - (c) Utilizing merchandising assistance from the media, such as a newspaper's assistance in obtaining tie-in ads from retail grocers;
  - (d) Providing special tie-in material to the dealer.
2. Sales promotion mailers, letters, or special pieces aimed directly to the dealers and designed to sell or keep him sold on the company, its products, and the work it does for the dealer.
3. Direct dealer helps; newspaper mats; point-of-purchase displays; traveling displays; statement stuffers with the dealer's imprint; transcribed spot announcements, etc.
4. Sales helps for the dealer's own selling force: instruction booklets; educational material, etc.
5. Miscellaneous special events, varying with each field, such as: press parties; publicity campaigns; fashion shows; convention or trade show material, etc.

Large manufacturers may utilize all these and more in the planning of their advertising and sales promotion programs. Planning should be done early enough so that personal selling, sales promotion and advertising are coordinated as to theme and timing. Economies in the re-use of art and production materials can also be effected—a very important point when the budget is limited.

Planning advertising to fit the marketing program should mean that the former is a natural outgrowth of the latter, but this can occur only if the advertising agency is thoroughly acquainted with the marketing set-up, preferably from having participated in its development. The agency should not be regarded as a purely mechanical or creative outside service, but rather as an integral part of the company's marketing structure. Many large and small advertisers have the agency's account executive as a permanent member of their marketing committee.

Any marketing plan—whether for consumer or industrial goods — necessitates getting a sales message ultimately to *people*. In many cases, advertising has proved to be the cheapest and most efficient means of making a company and its products known to prospective buyers. Whether this pre-selling is done through magazines, newspapers, radio or other media, its planning can best be based on the five "W's," all of which are inherent in the original marketing thinking:

*Who* is the prospective buyer? Engineer or housewife? Rich or poor?

*What* product should be pushed? Or what features emphasized?

*Where* do the buyers live? (And thus what media or means of reaching them?)

*When* is the best time for the over-all campaign and for individual parts of it (the proper page, day, issue, or hour to reach the buyer)?

*Why* should the customer buy? What appeals will impel him to buy?

On the face of it, there may be no argument with these statements, but there are often discrepancies between over-all marketing plans and the preparation of advertising campaigns. What justification can there be for a manufacturer spending the greater part of his budget in national magazines when his entire distribution is in the major West Coast cities? Or the company whose expenditure for the year—only a four-figure budget—went mainly into *one* four-color page (and the product was not a seasonal or one-shot item)?

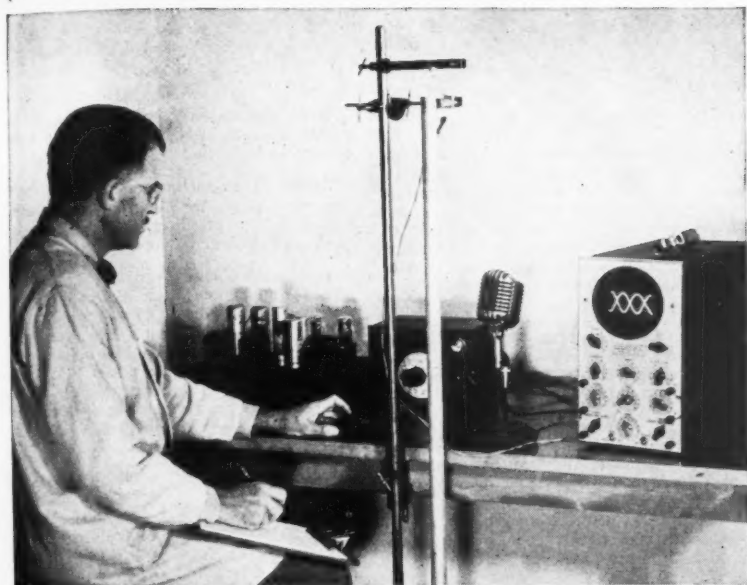
Logic alone would dictate that advertising distribution (i.e., media selection) must follow the established pattern. Copy and campaign themes likewise must find certain guides and signposts which are restricted to ites which are designed to sell, not to entertainment or the personal whims of vice-presidents.

Take the case of one of the largest producers of machinery parts in the West. After extensive — though not expensive — analysis of its potential markets, the se-

(Continued on page 97)



(Advertisement)



Laboratory set-up for measuring tone of chime tubes. Lissajous figure on screen of cathode ray oscilloscope is being used to determine the frequency (cycles per second) of the chime's fundamental note.

# Revere Tubes make Good Music

BECAUSE of the importance of the market for brass tube used in door chimes, Revere some time ago embarked upon a complete scientific study of the musical qualities of such tube, to determine the factors responsible for pleasing tone. Here is a brief report of the work, which offers an example of the thoroughness with which Revere attacks problems concerning the application of its mill products.

The first step was purely experimental. We proceeded by ear. Over 100 samples of tubes in various alloys, tempers and gauges were hung up, struck, listened to, and preferences obtained from many people. These tests indicated not only what was the best alloy, but also what were the proper temper and wall thickness

requirements to produce the most acceptable and desirable tone. But Revere did not stop there. It was desirable to know what made that tone preferable, what were the factors that influenced it, and how they could be controlled. It was felt that only with such complete information in hand could Revere be in position to control chime tube quality accurately, and fill customers' orders reliably with a standard product.

The project then was turned over to a laboratory physicist who is also a talented musician. Here began the most ambitious and lengthy and scientific part of the work, employing the most modern electronic apparatus, including a beat-frequency oscillator and a cathode ray oscilloscope. These made

it possible to dissect the tone produced, measuring the frequency and intensity of the fundamental note and its partials with an accuracy of one cycle per second. Much new information was uncovered. For example, the strike tone so clearly heard when the chime is struck does not actually exist in the tube, but is a difference tone between the 1st and 3rd partials. Hence, for good tone, those partials must be equal in intensity and duration.

It requires seven closely-typed pages just to sum up the work in general terms; the laboratory records fill a large volume. The net of it is that Revere really knows about all there is to know about chime tube, scientifically, musically, physically, and, of course, how to produce it. If you need such tube, come to Revere.

Perhaps you use brass tube not for its sound, but for its corrosion resistance, strength, machinability, the polish it takes, the ease with which it can be bent, soldered, brazed, plated. Revere also knows how to control the factors influencing such applications, so come to Revere for brass tube for any purpose.

Revere also makes other types of tube, including copper water tube, condenser tube in such alloys as Admiralty, Muntz, cupro-nickel, tube in aluminum and magnesium alloys, lockseam tube in copper alloys and steel, and electric welded steel tube. Many of these can be had not only round, but also square, rectangular, oval, and in various flutings and special shapes. The Revere tube line therefore is complete, and awaits your orders.

The Technical Advisory Service will gladly collaborate with you in such matters as selection of alloys, tempers and gauges, and in fabrication processes.

## REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York  
Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; New Bedford, Mass.; Rome, N. Y.—  
Sales Offices in Principal Cities, Distributors Everywhere.—Pacific Coast Sales Offices in San Francisco, Seattle, Los Angeles.

# WESTERNERS AT WORK...

## California

### Metals

Wakefield Baker, of Baker & Hamilton, San Francisco steel dealers, has been appointed to the Merchant Steel Products Distributors Advisory Committee by Secretary of Commerce Charles Sawyer. The committee represents distributors of wire, nails, roofing, galvanized sheets and similar steel items.

Gilfry Ward, Oakland, named vice-president of Kellogg Division of the American Brake Shoe Company. He will continue to serve as vice-president of the company's American Manganese Steel Division, and will continue to maintain offices in Oakland.

Park Q. Wray, general manager of replacement division of National Motor Bearing Co., Redwood City, appointed to the board of directors. He has been in his present post for 10 years, and will continue while serving as a director.



E. B. Hill

Sherman L. Crary

E. B. Hill, who recently retired after 48 years service with Bethlehem Steel, has been succeeded in the post of treasurer of the Bethlehem Pacific Coast Steel Corporation by Sherman L. Crary. Mr. Hill started with Bethlehem Shipbuilding Corp. as an office boy in 1900, and rose to the position of vice-president and treasurer of Pacific Coast Steel Corporation in 1930, retaining these posts when the organization became the Bethlehem Pacific Coast Steel Corp. in 1945. In addition to his duties as treasurer, Mr. Crary will continue as secretary of the corporation.

W. Wallace MacLean, chief engineer for Alladin Heating Corporation, Oakland, prior to the war, has rejoined that organization. He served with the U. S. Engineers and as regional engineer for the Smaller War Plants Corp., and for the past two years has been Chief of Technical Services, U. S. Department of Commerce, San Francisco.

### Oil

Warren K. Venatta named manager of product control by Oronite Chemical Co., subsidiary of Standard Oil Company of California. He has been associated with Standard since 1939.

Rouse Simmons elected president of Republic Oil Company, Los Angeles. James B. Fredericks elected vice-president, and Melvin H. Lockett, secretary-treasurer.

Lev A. Mekler, petroleum engineer and technologist, has been appointed as a consultant for the Stanford Research Institute, according to the announcement by Dr. J. E. Hobson, director.

T. H. Sherman, Huntington State Company, elected chairman of the conservation committee of California Oil Producers.

## Manufacturing

Rollo J. Cobban, Honolulu, and A. W. Copley, San Francisco, honored by Westinghouse Electric Corp. Mr. Cobban, Westinghouse representative with Hawaiian Electric Co. since 1941, was awarded the Westinghouse Order of Merit, the company's highest for outstanding service; Mr. Copley, engineering and service manager, Pacific Coast District, received a citation for 45 years of service.

Harry Schenck, former manager of the Oregon Newspaper Publishers Ass'n, named executive vice-president of the California Manufacturers Ass'n, succeeding Alvin E. Hewitt, resigned.

Frank Tehan, of the Tehan & Reese Shingle Company, is manager and board chairman of the recently formed Redwood Shingle Association. Headquarters of the group, which so far includes 22 manufacturers of California redwood shingles, are at Fortuna, with a San Francisco office to be maintained at 55 New Montgomery Street.

### Paper

J. E. Crosby, manager of the Oakland division of Western Waxed Paper Co., has been named general manager of all company operations. C. L. Dilling, former Portland division manager, succeeds Crosby at Oakland.

### Banking

Harry S. McClellan, vice-president of the Bank of America, has been granted a leave of absence to accept appointment as chief of the food and agricultural division of the Italian Mission of the ECA. He will operate under direction of J. D. Zellerbach, chief of the mission.

### Transportation



Roy E. Larson

Roy E. Larson has been promoted to treasurer of the Western Pacific Railroad, following retirement of Emory C. Bates, who held the post since 1928 and recently completed 38 years with the company. Other promotions occasioned by retirements at Western Pacific includes Leo J. Gosney and John R. Strachan, who become general auditors replacing Thomas Kearns, a veteran of 37 years, and Charles P. Russell, with 42 years service with the road. Joseph C. Marchand becomes purchasing agent in place of Stanley R. Proffitt, retired after 39 years.

C. D. Lafferty, general industrial agent, Southern Pacific Co., appointed chairman of the Business & Industrial Development Committee, San Francisco Bay Area Council. His committee comprises 75 members from all ranks of industry, trade, commerce and agriculture in counties bordering San Francisco Bay.



C. D. Lafferty

E. H. Johannsen appointed assistant freight traffic manager, San Francisco, for Olympic Steamship Company.

Robert M. Ruddick, formerly European manager for United Air Lines, has been made assistant to the president and public relations manager for United at San Francisco.

Frank Strong, manager of Industrial Development for the Union Pacific Railroad in Southern California and Nevada, has retired after 38 years with the road. He has been succeeded by A. C. Ritter. Strong also gave up his posts as president of Overland Terminal Warehouse, Los Angeles, and vice-president of the Las Vegas Land & Water Co. He has been succeeded in the Overland post by Gordon Ross.

## Materials Handling



Albert J. Freitag

Hampton Robb has been appointed executive vice-president, and Albert J. Freitag, treasurer, of Aerol Company, Inc., Los Angeles materials handling equipment manufacturers. Mr. Robb was formerly assistant sales manager with National Biscuit Company, and Mr. Freitag was with the California Bank, Los Angeles.

## Textiles

John R. Roscow appointed manager of the new roller-printing department at the Los Angeles plant of United Piece Dye Works, under direction of C. R. Tagliabue, vice-president in charge of United's California plant. He was manager of the same department of the firm's operations in Lodi, N. J.

## Food

Ralph W. Shafor, general production manager of San Jose and California operations of Amino Products Div., International Minerals & Chemical Corp., was awarded a five-year service pin recently.



Employees of the Santa Fe Railway mechanical department at San Francisco and Oakland were awarded the company's Safety Plaque for working 109,491 man hours in 1947 without reportable injury. W. P. Hartman, Los Angeles, mechanical superintendent for the Santa Fe Coast Lines, made the award. It was received on behalf of the employees by A. J. Dietrich, ass't master mechanic, San Francisco terminal division.

Paul H. Parrish, former general manager of Oakland Canning Co., has been appointed as advisor in connection with operations by Welch Grape Juice Co., which recently purchased the plant. C. A. Reiser, former Oakland Canning sales manager, will head the private label sales department.

Robert Herndon promoted to general sales manager of California & Hawaiian Sugar Refining Corp., Ltd. He has been sales manager for the Western division, which post will be filled by C. Harry Bleich.



Sidney L. Boucher

Thomas H. Quayle, pioneer in gas-turbine development, has been named president of the newly formed Turbo-dyne Corporation, Hawthorne, Calif. The organization was formerly known as Northrop-Hendy Company, and is wholly owned by Northrop Aircraft, Inc. Mr. Quayle was vice-president and general manager of the old company.



Thomas H. Quayle

#### Colorado

M. P. Drumond named works manager of the Denver Chemical Co. plant of Colorado Fuel & Iron Corp. He was formerly in the chemical engineering department at Pueblo.

#### Idaho

Otto H. Leuschel appointed acting general manager of Potlatch Forests, Inc., by president J. F. Jewett of Spokane. Mr. Leuschel succeeds the late C. L. Billings, who passed away in June.

#### Montana

Lyman H. Andrews, manager of the Billings, Mont., factory of the Great Western Sugar Co., will assume position of assistant vice-president on September 24. He will work with D. J. Roach, executive vice-president, with offices in Denver. R. L. Kimmons, manager of the firm's Eaton and Greeley plants, will succeed Mr. Andrews at Billings.

#### Washington

M. M. Stewart named assistant to the president of the Olympic Steamship Co., Seattle. E. J. Ewers has been appointed freight-traffic manager.

Arthur Garton, state director of conservation and development, resigns to become assistant to the president, Wenatchee-Beebe Apple Co.

Rear Adm. W. S. Macaulay, USN (ret.) has joined the staff of Hanford Works general manager R. C. Muir, to handle liaison with the Knolls atomic power laboratory and eastern subcontractors. R. C. Robin was also appointed by Mr. Muir to handle public relations and records.

R. A. Dingman made director of public relations for Weyerhaeuser Timber Company. He will work from the Tacoma office of the firm,

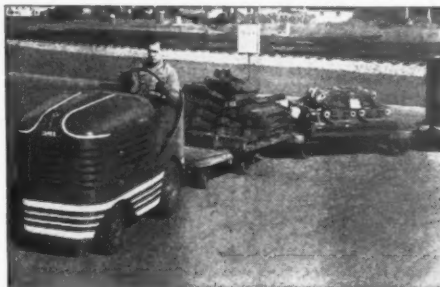
(Continued on page 64)

## MATERIAL HANDLING

# News



Trailer-loads of luggage, mail and express are hauled swiftly by the Clarkat to a waiting air liner.



On their way to storage a Clarkat hauls trailers loaded with castings, machined parts, drums and miscellaneous items.



Mass handling of palletized units on trailers is an easy, natural job for the Clarkat.

## This compact package of pulling power "delivers the goods," at low cost The CLARKAT

Thorough, thoughtful analysis of performance records of towing tractors used in Industry leads you inevitably to the husky, nimble Clarkat.

Hauling huge tonnages of material by the trailer-train-load—using its squared nose to bulldoze heavy units into position—handling the numerous heavy-pull jobs common to most busy plants: the Clarkat has made an extraordinary record for efficient and economical performance wherever it has been put in service.

Only an experience like Clark's—30-odd years of resourcefulness in evolving modern materials handling methods and machines—could produce the Clarkat.

Exceedingly important is the exclusive and flexible center-pivoted suspension of the full-width steering axle—a guarantee of smooth, safe travel over rough surfaces. It's easy to handle, easy on the driver, easy to steer.

It is built in two models:

- Clarkat "20"—drawbar pull 2000 pounds, towing capacity 42 tons
- Clarkat "26"—drawbar pull 2600 pounds, towing capacity 58 tons

It is gas-powered, with either solid or pneumatic tires. For still heavier hauling the Clarkat "6" is recommended; built in four models with towing capacities of 47, 68, 90 and 104 tons respectively.

A knowledge of this husky, hustling worker rates high as vital business information. To explore how it will speed up your production with substantial savings, get the objective survey and recommendation of a Clark field representative.

It's always "good business" to CONSULT CLARK.

## CLARK ELECTRIC AND GAS POWERED FORK TRUCKS AND INDUSTRIAL TOWING TRACTORS



INDUSTRIAL TRUCK DIV., CLARK EQUIPMENT COMPANY BATTLE CREEK 28, MICH. REPRESENTATIVES IN PRINCIPAL CITIES THROUGHOUT THE WORLD



# Accurate Forecasting Takes Guesswork Out of Production

**Machine Shops and Suppliers Are Beginning to Feel Impact of Government Aircraft Program; Movie Industry Disturbed by Box-Office Slump; Arizona Makes Its Bid For Apparel Industry**

**L**OS ANGELES—Backed now with a substantial new stack of blue chips, military and aircraft industry leaders nevertheless are playing their cards cautiously. The 70-group program brings no all-out drive to get huge quantities of planes turned out as fast as possible, but rather, a meticulous planning of production schedules for split-hair efficiency.

Since two-thirds of the 2,210 planes so far ordered by the Air Force out of the new appropriation will be built by four Los Angeles-area factories, local industry will receive a slow-fire but long-sustained impetus. For instance, the largest order for a single type of plane, the F-80 jet-propelled Shooting Star, will be spread over the next two years. Significantly, Lockheed says it will handle this job, along with another order for 89 P2V Neptune patrol planes for the Navy, with its present work force of about 12,000 employees.

Machine shops and some suppliers of components now are beginning to receive increased orders. Others will benefit later. The "gold rush" feature is conspicuously absent from the incipient expansion, however, for good, sound reasons:

(1) Production scheduling is no longer a mystic, crystal-ball art of prophesy. Today both the military and the industry can accurately forecast what a given amount of time, material, and manpower can produce.

(2) Military procurement officers are thoroughly acquainted with the industry built up under their wing. They have had enough experience in buying to know what costs ought to be. They will deal fairly but will be exacting in their demands for relentless efficiency.

(3) Wartime hurry-up is no more. "Dark horses" no longer will be given liberal contracts which virtually assure success, with all risks assumed by the Government. Proved results will be all that count.

(4) In bidding for contracts, established plants are competing with their own

records. A procurement officer can pull from his file the plant's own cost figures based upon big-volume production. The lower quantities involved in today's orders naturally call for higher unit costs—but the burden of proof will be on the bidder and the procurement man will be properly skeptical.

(5) Labor costs have risen sharply since early bonanza days. The so-called "Okie" who was lured by a fabulous \$30 per week has become accustomed to a wage structure which is now nearly the nation's highest. Plants are already built, and built large—and the volume of business is tiny indeed by comparison. These factors mean heavy overhead costs, a high break-even point.

To all these may be added the fact that Congressional halls still ring with echoes of recent procurement investigations. Vague underground rumblings promise that more probes will follow. No one can blame the military buyers for driving airtight bargains that will stand up under goldfish bowl publicity. The fact remains that the two to three billion dollars to be spent in the aircraft program will provide a worthwhile chunk of business for West Coast subcontractors to shoot at.

Interesting repercussions of the armament boom are experienced by the auctioneers who conduct their dismal obsequies over defunct businesses. Prices obtainable on the auction block for standard machinery have stiffened drastically within the past few months.

Part of this change may be attributed to the fact that the bulk of War Assets Administration's surplus has been either liquidated or withdrawn by the Munitions Board. Much demand comes, however, from tooling-up requirements of the many new industries now readying for production on the West Coast. One auctioneer remarked recently that popular types of machine tools bring at least 50 per cent more than WAA's quotations of last year.

If industrial buyers are few, there are plenty of speculators always in attendance,

ready to buy on any weakness. Many of these gentry, he says, are laying out considerable sums as an investment in anticipation of higher prices later on.

Not the same enthusiasm is true of the auctions at which stock and fixtures of small retail businesses are being sold. The bumper crop of new enterprises that sprouted in the first two years after the war's end is yielding an out-size harvest of failures. While the failure rate—actually about one-third of the prewar level—is low when measured in terms of the great number of firms actually engaged in business, it is high enough to rank Los Angeles as second only to New York in number of insolvencies.

Security-First National Bank estimates that some 44 out of every 100 trade outlets in Southern California have recorded a change in legal ownership during the past year. This rapid turnover and instability reflects the slowing up of retail trade in many lines, the stretching of many business shoestrings to the snapping point.

Dun and Bradstreet report that out of the 29 major areas in the nation, California and New England registered the smallest growth in trade activity during the past year. How much of a fillip will be given by the rearmament program, remains to be seen. It appears on the surface that the east now may be getting back some of its own, after being outshone by the West for the past seven years. It may require completion of many expansion plans now incubating to provide the employment required to keep up and consolidate the West's wartime gains.

### Triple Bad News

The film industry is back on the wailing wall. Just when local seers professed to glimpse, through the prevailing blackness, a few bright rays of the dawn, came a new, triple-threat dose of bad news: First, a new British ruling that 45 per cent, instead of 20 per cent, of the full-length features shown in England must be British-made;

(Continued on page 60)



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(Continued from page 58)

second, an adverse lower-court decision indicating that major studios probably will have to divorce production from distribution by getting out of the theatre-owning business; and finally, a batch of greatly deflated earnings reports indicating how seriously the industry is going through the financial wringer.

Paramount's president gloomily opined that his company, which operates the nation's largest theater chain, doubtless will shrink its capital structure to match prospective loss of earnings from its theaters. He also voices the common experience of all producers with rising costs and sagging revenues.

Seasonally, employment has risen somewhat since early spring, and about 40 pictures are currently in production, a normal number; but the average new picture will run about 14 minutes shorter, reflecting mighty efforts to cut costs. Only optimism recently expressed came from Warner Brothers, which studio reports its operations now at the highest level since 1940.

Even the cynics are undecided which factor has been most responsible for declining box office receipts: bad pictures, or the average American family's home budget difficulties. The old Hollywood formula of obtaining a better, more stupendous and more profitable picture simply by pouring more millions into its production, seems not to be clicking. Now the

lucrative world-wide market for U. S. films is fast being narrowed by efforts of many nations to encourage home-grown cinema industries.

Hollywood feels the British ruling constitutes an unfair repudiation of the agreement worked out by Eric Johnston some months ago, when foreign exchange difficulties first nearly closed the door to U. S. producers. The State Department has been asked to help out in patching things up, but Hollywood moguls realize that a new approach must be found if American dominance of the world industry is to be maintained.

So far, two experiments are being tried to solve the problem. One is to plough earnings from showings abroad into new foreign ventures, with the idea that some day pipelines may be opened to bring the profits back home. Another is to shoot the bulk of a picture abroad, basing the story on a U. S.-produced skeleton which is filled in with local material. Already 14 such production troupes are operating in France, Sweden, Italy, Australia, and other countries.

Some are wondering if perhaps the sun is setting on Hollywood's day of glory, and if the far-flung movie empire may develop into a network of international subsidiaries, with this Western industry itself gradually becoming more and more and more a home-office operation, producing only for the U. S. market.

### Imperial Valley Sugar

A new money crop is playing a pleasing tune on the cash registers of the rich Imperial Valley in southern California. Sugar by the trainload is beginning to roll out of the newly completed \$5,000,000 Holly refinery at Brawley, adding its quota of freight to the spring freshet of crack express trains rushing eastward with early cantaloupes, melons, lettuce, and other ahead-of-season delicacies. Valley acreage of sugar beets already has been doubled in anticipation of the new plant's completion, which was delayed nearly a year by material shortages and strikes.

### New Industries Sought

One of the West's best-known copper mining districts is laying plans to avoid what might one day become its fate as a ghost town. The Globe-Miami area of Arizona, still humming with activity under today's brisk demand for the red metal, believes that the potential effect of a deflationary slump in the price of copper might be offset by two counter moves: (1) attracting other industries, and (2) booming the tourist possibilities of surrounding scenic regions.

Globe, where closing of the Old Dominion mine long ago cast the first shadow of doom over the town's major industry, is bustling still because of its proximity to other active mines near Miami and Superior. Much exploratory drilling is going

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on to locate new ores in the area but so far, no rich ore bodies have been discovered. Driving to consolidate recent business gains, local leaders have solved the water shortage, started rebuilding old slum areas, expanded its power facilities, and are raising a war chest to promote its industrial and tourist attractions.

A mission soon will be sent to Los Angeles in the hope of capturing a share of that city's apparel manufacturing business. One firm already has started operations and it is believed a good market exists in the surrounding states for frontier-type shirts, slacks, and jackets.

An old Western institution—the "company store"—is the center of local controversy in Miami. Local merchants are strenuously trying to capture a bigger share of the retail business now going to the Miami Commercial Company, which sells everything from rugs and furniture to shoes and theater tickets.

Actually this store is an employee-owned cooperative, financed by loans from Miami Copper. Its purpose is to keep its miners on the job by offering them lower living costs. A payroll deduction plan enables them to buy on credit and lower prices are offered via rebates to customers through a dividend. Last January, for instance, the store paid out \$144,000, amounting to about 18 per cent on their purchases.

#### Power Division

On the very day when the Colorado's turbulent waters were turned aside once more through diversion tunnels to permit engineers to lay groundwork for the new Davis Dam, another interstate controversy was settled by Secretary of the Interior Krug. Half the power to be generated when the 180,000-kilowatt project reaches completion in 1950 will go to Arizona, the balance to be divided equally between California and Nevada.

Krug's action ended a situation which again underscores the West's great needs for more power. Already the Interior Department had received applications for four times as much electricity as the Davis plant will produce. Arizona wanted 322,000 kilowatts, California asked for \$288,000, Nevada sought 60,000 and Utah 10,300, a total of about 681,000 kw. In a Solomon-like decision, Krug split the potential output three ways, then ruled that Nevada's share will go to three southern California metropolitan areas until Nevada needs the power and claims it with a one-year notice. How soon that day may come depends largely upon how rapidly the latter state can build up her mineral industries to utilize her share of Hoover Dam's output, but sometimes it seems as if the West's needs for this vital element in industrial development are insatiable.

#### Says Trailers Better Than Tank Cars For Oil

On short hauls of 100 miles or less, one 5,000 gallon truck-trailer can deliver as

many barrels of oil as 11 tank cars, according to Vern M. Drew, of Fruehauf Trailer Company, who appeared before a Congressional sub-committee in connection with the national transportation inquiry. Mr. Drew represented the Truck Trailer Manufacturers Association.

"In the matter of fluid petroleum fuels," Mr. Drew declared, "it will be interesting to note that truck-trailer combinations actually are now delivering seven and one-half times as many ton miles per ton of steel as is being transported in tank cars. Or, to put it another way, the average railroad tank car today is delivering approximately .27 of one barrel of oil per

ton of steel per day, as compared to 1.96 barrels by truck and trailer combinations."

#### C & H Sugar May Buy Spreckels Interests

Engineers of the California and Hawaiian Sugar Refining Corp., Ltd., are studying the facilities of the Western Sugar Refinery pending a decision to purchase the operation from J. D. and A. B. Spreckels Company.

R. H. Regal, president of the Spreckels company announced recently that his firm was withdrawing from the cane sugar refining business, and offered the Western Sugar refinery for sale.

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## REGIONAL REVIEWS

### SIERRAS TO THE SEA

# Population Shift Still Continues Westward

**San Francisco Bay Area ahead of Los Angeles in retail sales increases; need for additional water supply studied by Bureau of Reclamation**

**S**AN FRANCISCO—Whatever the effect of the new mill basing system for steel prices, whatever the effect of ERP and myriad other factors on the West, the basic fact underlying all Western economy is that people are still coming West, farmers, mechanics, laborers, clerks, salesmen, executives of all ranks. Obviously this influx is not being digested as fast as it arrives, but that does not hinder people from coming, so those leaders on whom the responsibility for Western planning rests have much midnight oil to burn in figuring out how the newcomers are to be kept busy.

One proof of this continuing postwar Western growth is the figures compiled by Herbert Ormsby, research director for the California State Chamber of Commerce, from U. S. Department of Commerce sources, showing that retail sales in California in 1947 totaled \$11,052,689,000, an increase of 20.1 per cent over 1946 and 246.7 per cent higher than the prewar levels of 1939. This is about 3 per cent greater increase than the retail store sales for the country as a whole, the national average being 17.4 per cent. Increased availability of durable goods is clearly shown, sales of automobiles, parts and accessories being up 54.3 per cent over 1946, building material, hardware and farm implement sales up 37 per cent and household furnishings up 40.8 per cent.

#### Bay Area Gains

The gain for the San Francisco Bay Area, according to a separate study from the State Board of Equalization taxable retail sales by the San Francisco Bay Area Council was 20.8 per cent, or 2.4 per cent higher than the Los Angeles area. Pacific Coast wholesale sales for the first five months of 1948 were 8 per cent above the same period in 1947, according to the San Francisco Chamber of Commerce.

There were about 27 business firms in the Far West for every 1,000 persons in 1945, it is pointed out by John J. Judge, regional director at San Francisco for the U. S. Department of Commerce, but by

December 1947 the ratio had increased to 32 firms for every 1,000 persons.

One of the biggest problems in handling this increase of population is future water supply. Ample supplies for all present needs are available from the Sierra Nevada mountains and the Colorado River, but the future is being given careful consideration. Consequently much gratification is being felt that Congressman Welch got a resolution passed before adjournment calling for a comprehensive study of water resources in northern California. This resolution asked the Secretary of the Interior to:

"Investigate and report upon the feasibility and the justification of means to conserve, maintain, and utilize the fresh waters of the Sacramento and San Joaquin rivers and other possible water supplies at the northerly end of San Francisco Bay and in the Delta area, and in this connection to consider the water requirements and facilities required to provide water supplies to lands which are now irrigated or may be reclaimed, and for domestic, municipal, and defense purposes in the affected area, and any other features deemed pertinent, desirable, and justifiable, all to be contained in a report with appropriate recommendations to be forwarded to the Congress by the Secretary of the Interior as soon as practicable."

General Manager G. L. Fox of the San Francisco Chamber of Commerce has been notified by R. S. Calland, acting regional director of the Bureau of Reclamation at Sacramento that the Bureau will begin a study as soon as funds are available. Whether the Bureau will be able to use Central Valley Project money for this purpose is not yet certain, but it is believed the government will be able to find the wherewithal without a special appropriation from Congress. Various studies have been made in the past by the Army Engineers and some of the state bodies which can be utilized in building up a complete picture of the water situation.

As far as industry is concerned, the answer may very likely lie more in re-use of water than in additional supply. San Francisco, the East Bay cities and Los Angeles alone waste over 250,000,000 gallons of salvageable water daily, it is pointed out by W. J. O'Connell, Jr., industrial consultant, and that in the Los Angeles area more water is wasted to the ocean than is

brought in from the Owens and Colorado rivers. He points out that it costs at least 8 cents per 1,000 gallons to import water to the major cities of the state, whereas industrial quality water supplies can be produced from sewage treatment plant effluents at less than 3 cents per 1,000 gallons.

Assemblyman Dickey's interim committee which has been investigating water pollution problems for the entire state for many months, in preparation for a report to the legislature in January 1948, has called a technical advisory committee into action to prepare recommendations to the committee for assembling cost figures on treatment of industrial waste and domestic sewage in relation to benefits as well as responsibilities.

#### New Frontiers

Completion of 20,000 square feet of plant facilities by Hewlett-Packard Company of Palo Alto for their line of instruments for electronic research, measuring and test equipment, records another instance of the new frontiers which just before the war were supposed to have disappeared entirely.

In 1939, when William Hewlett and Dave Packard, graduate electrical engineers of Stanford University were making a resistance-tuned oscillator in a Palo Alto garage, the United States was supposed to have reached its last frontier and to be on the way toward a sort of Chinafied existence where progress was no longer possible. Today their products are now serving throughout the radio manufacturing industry, and are in use all over the world in research laboratories, schools, broadcast stations, telephone and telegraph installations, aircraft construction plants and maintenance shops, by geophysical and exploration concerns, and by industry as a whole in production control work.

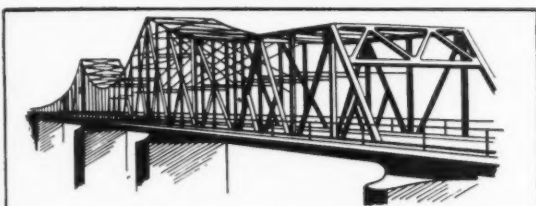
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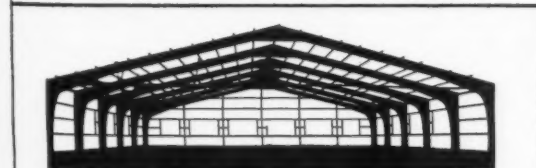
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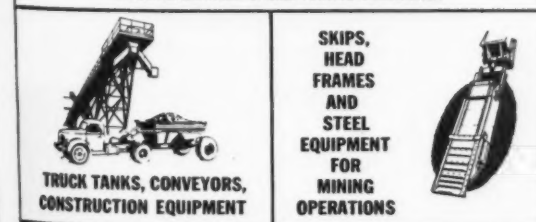
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## WESTERNERS AT WORK

(Continued from page 57)

handling safety, labor relations, personnel and training programs in branch operations in Oregon and Washington.

E. P. Reweick promoted to Seattle district agent of the Northern Pacific Railway, succeeding George N. Page, elevated to a new job at St. Paul.

Julian Surman named assistant manager for the Alaska Junk Co., Seattle. He was associated with Federated Metals Co. for 20 years, and during the war supervised salvage operations at Seattle for the Navy.

Larry H. Dugan has succeeded J. P. Kiley as vice-president of the Chicago, Milwaukee, St. Paul & Pacific Railroad, with headquarters at Seattle. He was formerly assistant solicitor general for the road.

G. M. Zucco, Seattle, appointed contracting manager for the four Northwest states by Bethlehem Pacific Coast Steel Corp., according to E. F. Gohl, vice-president. Mr. Zucco joined the Bethlehem organization in 1927.

Charles M. Rohda, general manager of shipyard activities for Puget Sound Bridge & Dredging Co., promoted to vice-president. He will continue to oversee shipyard operations.

L. E. Durkee, former division engineer for the Federal Works Agency, Seattle, has been named deputy administrator in charge of federal agency coordination in the Northwest flood area. Since 1941 he has been in charge of the FWA division embracing Oregon, Idaho, Montana, Washington and Alaska.

Freeman Schultz, formerly with Coos Bay Lumber Co., has joined the Juneau Spruce Corp. as executive vice-president and general manager, succeeding E. S. Hawkins, who re-

signed the general managership to devote time to specialized company assignments.

R. S. Hatch, director of research for the pulp division of Weyerhaeuser Timber Co. for many years, was scheduled to retire on August 1. Dr. H. W. Bialkowski, Everett, Wash., who was Hatch's assistant, will succeed to the post of director.

Cecil R. Logsdon, Spokane, appointed head miller and plant superintendent at the Ritzville mill of Centennial Flouring Mills, succeeding L. R. McKee, who resigned after 55 years in the industry. Mr. Logsdon has held the post of head miller in Centennial's Spokane plant for 12 years.

Dr. Wilbert M. Chapman, dean of the school of fisheries, University of Washington, appointed special coordinator of matters pertaining to fisheries by Secretary of State George Marshall.

Bruce Elmore, manager of the Reed Mills at Shelton, has been appointed manager of the McCleary Door and Plywood operations of the Simpson Logging Company. He succeeds R. D. Burrows, who resigned to take a position with a new plywood firm in Coos Bay, Ore.

Corydon Wagner, v.p. of St. Paul & Tacoma Lumber Co., elected president of the Douglas Fir Export Co., organization formed by Northwest lumbermen for export purposes. Other new officers include G. A. Kingsley, Portland, vice-president; L. E. Force, Seattle, vice-president and general manager; W. B. Nettleton, Seattle, secretary-treasurer.

I. H. W. Alma named as manager of the new Seattle office of Transpacific Transportation Co.

Robert U. Haslanger will become assistant to the general manager of Monsanto Chemical Co.'s Western Division on September 1. He is slated to become assistant general manager early next year.

## Associations Elect

Arnold Koutonen, Olympia, Wash., elected president of the Douglas Fir Plywood Ass'n.

American Institute of Electrical Engineers has formed a section at Richland, Wash., taking in Columbia, Walla Walla, Benton, Franklin and Yakima counties in Washington, and Umatilla county in Oregon. H. R. Hughes has been elected chairman, W. J. Dowis is vice-chairman, and J. H. Hemperly, secretary-treasurer. All are employed by General Electric Company at Richland.

W. E. Irvin, Boise, elected president of the Idaho Bankers Ass'n. Harry Eaton, Twin Falls, is vice-president, and George R. Schwane, Richfield, treasurer.

Raymond C. Aungst, Oregon Brass Works, Portland, is the new chairman of the Oregon chapter, American Society for Metals.

Ralph C. Wamser, Cosgrove & Co., Inc., elected president, San Francisco Control, Controllers Institute of America. Lloyd R. Boling, Oliver United Filters, Inc., is first vice-president; W. K. Minor, Standard Oil Company of Calif., second vice-president, and W. T. McGillivray, California Packing Corp., sec-treas.

S. B. Stocking, Jr., Pacific Storage & Distributing Co., Tacoma, elected president of the Puget Sound chapter, American Marketing Association. He was founder and first president of the Toronto chapter, and was formerly a professor at the University of Toronto.

Harry N. Lyon, Fidelity Mutual, elected president of the San Francisco chapter of Chartered Life Underwriters.

Charles F. Bannan, Pacific Gear & Tool Works, San Francisco, elected president of the California Metal Trades Association. Other officers include Cloy Gray, W. R. Ames Co., vice-president, and Roy Tatum, Western Pipe & Engineering Co., treasurer.



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## Job Analysis Program by Furniture Manufacturers

**A**CTION toward an industry-wide job analysis and evaluation program has been initiated by the research committee, Furniture Manufacturers Association of Southern California.

Chairman is Herbert E. Toor, Furniture Guild of California; J. R. Nason, Jr., S. Karpen & Bros.; Phil Virtu, Virtu Bros. Mfg. Co.; A. N. Skinner, Frederick Couch Co.; Morris Bauman, Bauman Bros. Furniture Manufacturing Co.; Louis Roth, Chas. Roth Furniture Mfg. Co.

Results that the committee hope for are as follows:

1. Industry-wide consistency in job classifications among those who participate. Each participating company will know that all jobs in its plant will be classified the same way as similar jobs in all other participating plants.

2. Each individual in each plant will be properly classified in relation to all other individuals in the plant, and the pay scale paid for each job will be the proper one in relation to the pay scale for all other jobs.

3. A considerable proportion of grievances over wage rates and job classifications will be eliminated, because each job will be clearly defined and differences of opinion regarding classification can be easily resolved on the basis of an investigation of facts.

4. Dissatisfaction regarding individual wage rates by employees in the various plants will be largely eliminated. The employees in the various plants will all realize that all other employees in the same company or in other companies in the industry are treated on the same basis.

5. The personnel functions of hiring and training will be improved because each job is clearly defined.

6. Lines of promotion from one job to another will be clearly defined.

7. Union negotiations, if any, regarding job classifications and individual wage rates will be simplified. The analysis and evaluation program will reduce subjects which previously were a matter of opinion to a factual basis and clarify the issues involved.

## Shell Chemical Moves Offices to New York

The \$5,000,000 expansion program of the Shell Chemical Corporation for its three California plants will not be affected by transfer of administrative offices from San Francisco to New York, according to President Jan Oostermeyer. Coast sales and manufacturing operations will remain in their present status, he said. The move affects approximately 125 members of Shell Chemical's San Francisco office staff, all of whom are being sent to New York.

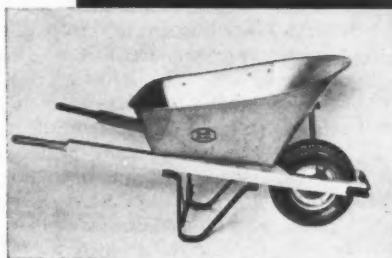
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## REGIONAL REVIEWS

### CONTINENTAL DIVIDE

# Two New Cement Plants Boost Mountain Area Building

**Colorado Promotes Growth of World Trade Among Marshall Plan Nations and South America; Low Grade Ore Attracts Anaconda; Founder of Great Industrial Empire Passes; New Beet Harvester**

**D**ENVER. — Industrialists in the mountain states are swinging into aggressive sales promotion programs, having pretty well licked postwar problems of supply, labor and capital for expansion.

Lack of cement has held back plant construction as it has handicapped all building in the area, but completion of the Ideal Cement Company's big new cement plants at Portland, Colorado, and Ogden, Utah, should have ended the squeeze. The two plants, which cost a total of \$13,000,000, will turn out nearly 50,000 sacks of cement daily between them. By early September all back orders will have been filled, the cement company officials stated.

Colorado Springs keeps yammering that it wants additional industries, claiming its drive has brought 23 new manufacturers to the Pike's Peak metropolis in 23 months. One of these, the Timken Roller Bearing Company, has been going full-tilt at its Colorado Springs rock drill plant for weeks and has just turned out its millionth rock bit, with a crew of 90 persons. As at Denver and other mountain states industrial centers, the craftsman-type industry is most popular with the local folk and the city fathers. Colorado Springs outbids other towns in the area in offering important inducements to outside industrialists.

#### Impressive Export Totals

Denver has computed its trade with foreign countries amounts to \$300,000,000 a year, despite its seeming handicap as the largest land-locked metropolis in the United States. Consequently, there is a surprising amount of interest in the problems of world trade, with current emphasis on the Marshall Plan and the fast-growing interchange of goods and services with the Spanish-speaking peoples to the south.

The unsettled state of affairs outside the United States has helped the economy of the mountain states, in keeping agriculture humping to attain peak production goals and stimulating producers of raw materials to expand their domestic production with-

out worrying about foreign competition at the moment.

Advanced technology has made American sources of raw materials look good again, despite their relatively low-grade character when compared with lush deposits abroad. But the foreign bonanzas have their drawbacks, including socialist-minded governments with a strong anti-foreigner flavor. Consequently we see such a firm as Anaconda Copper Mining Company rushing work on a 20-million-dollar project at Butte, Montana, to unearth low-grade ores that were ignored a few years ago, when it looked as if the bigger copper companies were about to wind up their domestic operations and concentrate their efforts hereafter in Africa, South America and other distant climes. Anaconda's newest Butte project will be producing 10,000 tons of ore daily within three years, in addition to all the other production from "the richest hill on earth," where metal output now is well along toward the almost incredible total of four billions of dollars, and most of it from base metals rather than precious stuff like silver and gold.

#### Sell It Anywhere

When Denver celebrated its annual World Trade this spring, 250 local firms that ship their products to foreign countries took part. Several foreign countries have well-staffed consular offices in Denver, and more are being established from year to year, just as more firms in the mountain states area are opening sales offices in foreign countries.

Denver's industrial exports include such heavy equipment as machinery for mining and milling, ore furnaces, ore cars, road machinery, agricultural machinery and land levelers, gears, steel rails, nails and wire, steel grinding balls, centrifugal pumps, rock bits, glass and paper making machines, playground equipment, oil drilling devices, turret lathes, and stamping machines. That ought to dispose of the idea that high freight rates make Denver

a hopeless place for industrial advancement.

In addition to the heavy stuff made in Colorado and shipped all over the world, there are products that have a high value per pound and consequently can be shipped anywhere without much concern as to freight charges. Denver-made items in this category that have won world-wide markets include sporting goods (especially fishing gear of all kinds), leather products including saddles, bits and spurs, precision instruments including analytical scales, luggage and card tables, biologics and laboratory equipment; stencils, carbon paper and typewriter ribbons; insecticides, laboratory equipment, incubators, rubber products, woolen neckties, dental equipment, dancefloor wax, aluminum reels and cases, cosmetics—and oriental foods, made in Denver and shipped to Hawaii and points east for consumption by orientals!

#### Hole-in-the-Wall Plant?

And if anybody thinks the industrial plants in the mountain area are little hole-in-the-wall establishments, they ought to have a look at the Gates Rubber Company plant in Denver. Of America's 300 rubber companies, Gates stands in sixth place and it is coming up fast. Here is a Denver concern with 7,000 employees, 5,000 of them working at the big plant on South Broadway in Denver. Gates V-belts and other rubber products are sold all over the United States and in 71 other countries. Gates now engages in the manufacture of synthetic rubber in Louisiana, as well as in production of rubber products. Its huge new research building in Denver is as big as most good-sized factories.

#### Empire Builder Passes

"The King is dead; long live the King!" Such a cry might have gone up from Colorado last month when Charles Boettcher died at the age of 96. The mountain states' No. 1 industrialist, without a question, was the German-born tycoon who came to Colorado as a young man lacking nothing

(Continued on page 68)





## A Message to All Designing Engineers

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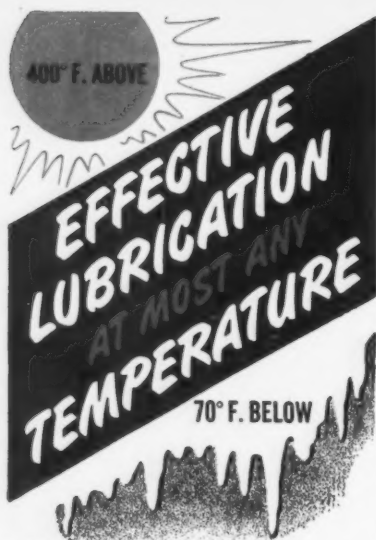
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DEALERS FROM COAST TO COAST  
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(Continued from page 66)

but money. Store-keeping at Leadville and Denver soon remedied that lack and Boettcher went on to found an industrial dynasty that includes the beet sugar industry, the cement industry, and associated enterprises including meat packing, hotels, air lines, power and light companies, railroads, etc. Claude Boettcher, son of the great Charles, keeps a firm hand on the family fortunes and has added many a million by his own efforts.

Charles II, son of Claude, recently was credited by United Air Lines president W. A. Patterson as one of two young men who were responsible for the fact that "Denver is the hub of commercial aviation for the entire United States. . . . Not one passenger or a single piece of cargo is taken aboard the United Air Lines plane thruout out entire system—from New York to Honolulu—without a clearance from our master office here in Denver. Denver is a big city. United is a big airline. And a lot of credit for that is due to two men interested in both—Charles Boettcher and Eddie Nicholson."

#### Metal Bonus Killed

Failure of the 80th Congress to approve the premium payment plan for scarce metals was a blow to the West. Just what happened during those hectic last days before the tired Senators and Congressmen called it quits isn't any too clear.

It is evident that Colorado's potent Republican Senator Eugene D. Millikin got the matter on the floor of the Senate by dint of his personal prestige. But it was at the worst moment of a none-too-bright session and the exhausted legislators scarcely knew what they were doing. With minds weak and low and no great political capital to be made by approving the premium payment plan, the solons dreamily lent half an ear to the argument and then said, "Let's go to the convention." While Republican apologists will have trouble explaining this blunder, it must be recalled that the measure wouldn't have come up at all but for Senator Millikin's personal plea.

#### Bright Banker

Businessmen up and down the mountain states are discovering there is a really bright banker in their midst, for a change. The newcomer was born in a sod hut in Kansas not so very many years ago. Now he is president of the old and fast-growing Central Bank and Trust Company of Denver—Elwood M. Brooks. He is on the board of the American Bankers' Association, a power in the U. S. Chamber of Commerce, and the first financier in years to shake the daylight out of Denver's 17th Street financial community.

Latest of Brooks' activities to attract national attention is his vigorous development of the unique service of the Protected Check Corp. of America, of which he is treasurer. "Fight the hot check artist," is

the company's slogan and all business will benefit because a sharp line has been drawn between honest men and crooks, at long last. The honest man doesn't mind leaving his fingerprint; the crook doesn't dare.

Brooks found the company making hay with a simple system for eliminating the crooks from the hordes of people who cash checks every day. An invisible "ink" that doesn't smudge the thumb was introduced, eliminating the hazard of persons who abhor getting dirty. Then came further simplification of the plan, so that the thumbprint of an honest person never is seen on the check but is there and can be brought into view by wiping it with a solution prepared for the purpose. There on a check that has bounced is the endorser's fingerprint, ready for checking.

Hundreds of banks, large business organizations, credit groups and other business agencies are pushing for universal adoption of the protected check plan as a boon to honest people who have had trouble getting their checks cashed and a double-boon to businessmen who usually cash checks for the wrong people and consequently take a beating for their pains. Looks like Elwood Brooks has hit pay-dirt in his Protected Check Corp.

#### Inventors Field Day

Ambitious inventors from all over the Rocky Mountain area had their innings at Pueblo, Colo., last month when E. L. Wilkins came off with the \$500 prize for his sugar beet harvester. The machine looks like a mechanical dinosaur on rubber-tired wheels, and it digs, tops and loads beets in one operation. Wilkins is a farmer in the Arkansas Valley near Las Animas. A milk cooling device invented by Elmer L. Lundvall of Greeley won the \$200 second prize and Roswell V. Bearup of Colorado Springs took home \$100 third prize money for his shaper attachment for a table saw. Judges at the first of Pueblo's highly successful inventors' congresses were Everett S. Lee, chief of General Electric Laboratories, Schenectady, N.Y.; James R. Ward, editor of Popular Mechanics magazine, Chicago; and William Brill, assistant chief engineer of the Colorado Fuel & Iron Corp., Pueblo.

#### Shale Oil to Coast?

From the Oil Reporter, Denver oil journal covering developments in the Rocky Mountain region, comes this interesting revelation:

"The government's shale oil specialists have worked out all the details of a huge oil recovery plant on Parachute Creek, not far from the Anvil's Point location near Rifle, Colo., where the U. S. Bureau of Mines present demonstration plant is located. Now the agency is looking for some well-heeled operator to build the huge commercial-scale, continuous-process plant. It would need a pipeline to southern California to carry 100,000 barrels of shale oil per day!"

Among the companies now engaging in large-scale research on shale oil recovery and related matters are Union Oil Company of California, Stanolind Oil & Gas Co., Standard Oil Development Corp., and the Universal Oil Products Corp. The day of commercial shale oil operation is just about here and Uncle Sam's investment in this phase of synthetic fuels research seems likely to pay excellent dividends before the current decade is over.

### Cost of Distilling Ocean Water

When California turns to the ocean for its future water supply (many people already have discarded the "if" and are using instead the word "when"), the cost may run from 12c a ton down to 5c, the latter figure being less than the cost now charged by the U. S. Bureau of Reclamation to bulk users of domestic and industrial water.

Rough estimates for a very large plant with five stages of condensing on a 24-hour a day operation for 300 days a year indicate a cost of water produced at the plant of about 12c, according to R. G. Folsom, professor of mechanical engineering, University of California. Some authors have estimated the cost at 5c, and

Professor Folsom puts the minimum bulk price at 3c a ton.

The major problem in operation of a compression distillation unit is the scaling occurring in the evaporator and heat exchanger caused by concentration of mineral salt in the brine. An intensive study of the problem is being undertaken by Professor W. F. Langelier of the University of California engineering department at Berkeley.

### Idaho University Research Projects

Three new special research projects in the engineering experiment station at the University are:

(1) Exploring the possibility of chemical processing of Idaho industrial wastes to develop marketable products, beginning with a study of the wastes of starch manufacture from cull potatoes. C. O. Reiser of the chemical engineering department will direct the project.

(2) Chemical separation and purification of the rare earth metals from Idaho monazite sands using ion-exchange methods. L. A. Jobe of the chemical engineering department will be project leader.

(3) Methods of evaluating seepage losses in irrigation canals is the objective.

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## REGIONAL REVIEWS

### THE PACIFIC NORTHWEST

# Northwest Production Gets Under Way After Flood

**Agriculture and Lumber Industries Are Worst Hit; Loss of Pig and Ingot Aluminum Felt by Other Plants; Dikes Rebuilt by Novel Method of Machine-Filling Sandbags From Mixer**

**P**ACIFIC NORTHWEST — During the last week of May and much of June a large proportion of the Northwest's resources of men and materials were devoted to combatting and cleaning up after the highest flood on the Columbia River since 1894. More than half of the area of the Northwest which lies in the Columbia River basin was affected, from western Montana to the Pacific Ocean and from the Canadian border to central Idaho.

The total amount of damage caused by the exceptionally high summer runoff of the Columbia River and its tributaries east of the Cascade Mountains probably will not be known until sometime in August. Preliminary estimates plus final figures from some local areas indicate that the total damage may run as high as \$150,000,000 or more. Heaviest sufferers will probably be found to be the agricultural interests, followed by transportation services, residential property, and industrial property in that order.

Industrialwise the greatest damage done appears to be in the loss of production of already scarce materials, but even here the loss should not exceed 10 to 15 per cent of the Northwest production. The number of plants directly affected by location within the high water area is relatively small in comparison to the total of Northwest industry. However, many other plants were affected indirectly, principally through inability to secure delivery of raw materials during the height of the flood. Production losses of important volume occurred in lumber, aluminum, and paper industries.

Lumber mills along the Columbia and its tributaries from the J. Neil Lumber Co. mill at Libby, Mont., on the Kootenai River, to sawmills at Wauna and Westport, Ore., only 35 miles from the mouth of the Columbia at Astoria, were closed either by a lack of logs or because parts of the mills were under water. The West Coast Lumbermen's Association estimated in the third week of the flood that lumber production in Oregon and Washington

was off 9.3 per cent. Another source estimated that production of 40,000,000 board feet per week was being lost because of the flood, but this figure appears to be somewhat high.

**SEATTLE**—Total industrial expansion in the metropolitan area during the month of May involved 14 plants and capital expenditures of \$1,915,000. Four new industries, three plant replacements, and eight expansions are included in the list.

Ten representatives of management and ten representatives of labor in the Puget Sound region have organized the Puget Sound Industry-Labor Exposition, Inc., and elected Frank West, head of Preservative Paint Co., as president. Plans are going ahead for holding of the first annual industry and labor exposition in Seattle, October 4-10. Exhibits are planned to demonstrate manufacturing processes employed in the production of goods within the region.

Boeing Airplane Co. has received additional orders from the Air Force for 162 B-50 heavy bombers. This raises the current Boeing backlog to about \$400,000,000.

• Mixermobile, a Portland product designed for cement, was used to good advantage in mass-filling of sandbags during battle against flood waters. Plant employed 600 men.



The area of greatest concentration of the lumber industry, southwestern Oregon, was not affected by the flood; neither was the Puget Sound area of Washington. Consequently it appears doubtful whether the loss of production will exceed 10 per cent over a period of four to six weeks. All mills along the lower Columbia were affected to a greater or lesser extent. Both river and railroad traffic on both banks were closed down, and the huge log surplus of last winter had largely vanished during the boommen's strike so that mills were without logs even though they were above water.

At Longview, Wash., two of the largest mills, Weyerhaeuser and Long-Bell, maintained partial operation, but planing mills were closed as a precautionary measure to prevent possible damage to water soaked dikes by vibration. Employees of these and other forest products plants in the area were released for emergency work on the

(Continued on page 72)



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The above view, in a West coast paper mill, shows a transfer point between two Link-Belt belt conveyors at right angles, carrying wood chips at the rate of 45,000 cu. ft. per hour.

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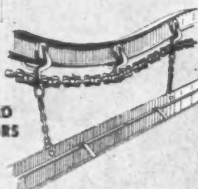
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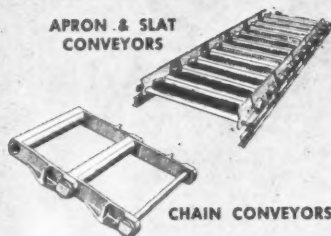
**OVERHEAD**  
CONVEYORS



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FEEDER-CONVEYORS



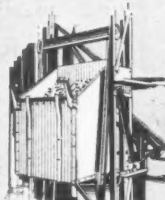
**APRON & SLAT**  
CONVEYORS



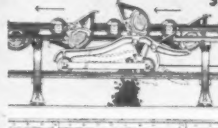
**CHAIN CONVEYORS**



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AND ELEVATORS

(Continued from page 70)

river dikes, an action which proved worthwhile since dikes in the Longview area were not breached and all plants remained high and dry. Operation of the plants could be resumed after about a three-week shutdown.

Among the plants feeling secondary effects of the flood were the Doernbecher Manufacturing Co. in Portland, the M&M Woodworking Co. plywood plant at Longview, and the Crescent Shingle Co. mill at Longview. The Doernbecher plant, one of the largest furniture manufacturing operations in the area, was reduced to about

29 per cent of normal operation although the plant itself was far removed from the high water zone. The difficulty came in getting lumber from the company's sawmill above Oregon City to the manufacturing plant with railroad yards on the east bank of the Willamette under water.

Both the plywood plant and the shingle mill at Longview were adequately protected by dikes during the flood, but employees were released for emergency protection work on the dikes. Transportation of logs into the area and finished products out were so far curtailed that operations could not have continued. These plants

were able to resume normal operations within a relatively short time after flood waters began to recede.

Loss of 24 per cent of the Northwest's pig and ingot aluminum production capacity for about a month also represents a loss of 10 to 12 per cent of the national production. Although three aluminum reduction plants, Reynolds at Troutdale, Ore., Alcoa at Vancouver, Wash., and Reynolds at Longview, Wash., were within the flooded area, all three remained high and dry and only the Troutdale plant was shut down. The closure was made as a safety measure after water-soaked river dikes developed boils and seepage, and secondary dikes to the west were called into play by the failure of dikes in adjoining districts.

Employees of the Troutdale plant were put to work on dike patrol and sandbag filling operations before and after the plant was closed. In the latter instance they played a large part in developing a system for filling sandbags which will go down in flood-fighting history as a revolutionary change. Under the direction of the Corps of Engineers a mass production, sandbag



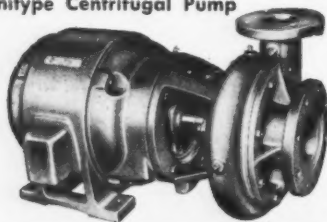
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PORTLAND—Reynolds Metals Co., operating the government-owned aluminum reduction plant at Troutdale, has asked the War Assets Administration for a longer lease. Present lease on the plant, and three others in the south and middlewest, are for five years with options to renew for two years.

Morris P. Kirk, Inc., affiliate of the National Lead Co., has announced plans for the construction of a \$250,000 lead alloy plant in Portland. Plans of the parent company for a lead oxide plant are reported to have been deferred.

Perrin Tractor & Equipment Co., which moved here from Kansas City, Mo., a year ago, has removed to new quarters where production of a lightweight, four-wheeled tractor on a basis of 400 units per month output is scheduled to start.

filling plant was set up. For the first time, as far as is known, construction equipment was utilized to transform the usually hard labor job of filling sandbags into a mechanized production line.

A Portland manufacturer, Mixermobile Manufacturers, produced the equipment which turned out to be admirably suited for the flood fighting work, although it is doubtful whether the manufacturer ever contemplated that the equipment would be used for filling sandbags. Briefly, the process consisted of loading the skip of a Mixermobile with sand from a dump truck. Sand was run through the mixer into a hoist bucket which could be raised to a convenient height and sandbags filled from the bucket chute. Filled sandbags were loaded on Scoomobiles for loading into dump trucks or transfer to a stockpile for use as the need arose.

The sandbag plant employed about 200 men per shift, working around the clock

in three eight-hour shifts for more than two weeks. Sandbags were loaded at a rate of more than one per minute. One shift at the plant was completely manned by employees of the Reynolds Troutdale plant. While this was an outstanding example of industry along the lower Columbia cooperating in the emergency work to reduce flood damage to the lowest possible minimum.

At Vancouver, Alcoa maintained full production throughout the flood period although the plant was completely surrounded by water. Employees were ferried to and from the plant by boat, and opera-

**SPOKANE** — Carnation Co. has awarded construction contracts for a \$400,000 plant addition which is expected to be completed by October 1. The addition will house milk processing equipment.

The northern Rocky Mountain region produced more than 817,000 transmission line poles during 1947, indicating that the industry may soon be one of the major forest industries of the region. Last year's production represented a 15 per cent increase over the previous year. A shortage of cedar poles and acceptance of the lodgepole pine have been instrumental factors in developing the industry which centers in northern Idaho.

Theme of the 1949 Wood Products Clinic to be held here during March or April has been selected as "Seasoning of Forest Products." Detailed discussion topics under the general heading will be selected for presentation at the meeting.

tion was restricted to the alumina on hand which proved to be sufficient until rail transportation to the plant could be restored. The aluminum plant was the only one of the waterfront industries in Vancouver which was able to continue operations through the flood period.

Operation of the Reynolds Longview plant was not affected. The plant had just regained capacity operation after nearly a year's shutdown when the flood occurred. The total lost aluminum production on account of the flood is estimated to be between 11,000,000 and 16,000,000 pounds. Although this is a relatively small quantity, its absence will be felt, coming as it does at a time when the demand for aluminum is increasing and supply has not been within three months of demand for three-quarters of a year or more.

Among the waterfront industries in Vancouver which were inundated was the Columbia River Paper Mill, and at this plant there took place one of the best planned and executed programs for minimizing flood damage that has been heard so far. As soon as the plant management realized that flooding of the plant was inevitable, the entire plant was surveyed to determine just how far the water would rise in each section.

The official forecast in the early days of the flood called for a maximum rise of 30 feet above mean low water at Van-

# ~it's from HERE

# to HERE



● It's an easy matter to define the "comfort zone" in a plant. It's that eight or ten feet above the floor that must be heated for employee comfort. But it's quite another matter to heat it economically and effectively when thirty feet of air space extend above it to the roof.

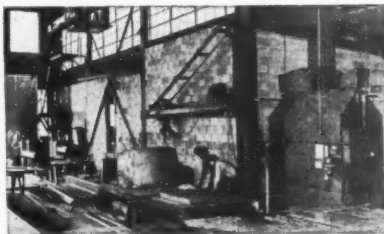
Such a problem faced the Minweld Steel Company in its new fabricating plant in Pittsburgh—and a Dravo Counterflo Heater solved it for them.

This powerful unit discharges warm air above the heads of the workers, circulates it through the working area, and returns it without drafts to the base of the heater for reheating and recirculating. This method maintains uniform heat throughout the 6,500 square foot working area—even though two 19-foot square truck doors open at each end, and metal-siding walls are broken by an abundance of windows.



Installation of the self-contained Dravo Counterflo Heater required only a fuel line, a power line and a small venting stack—no boiler room or piping. Ductwork, too, is unnecessary because capacity is ample to blanket a radius of 250 feet completely and evenly with warm air. The unit is entirely automatic . . . it is shut off at night—and at 6 A.M. the watchman simply flips a switch and the plant is warm fifteen minutes later.

Bulletin IY-516 contains valuable information about the Dravo Counterflo Heater which you can apply to your own heating problems. Write for it, Heating Section, Dravo Corporation, Dravo Building, Pittsburgh 22, Pa.



*In a fabricating plant such as Minweld Steel Company, man-hours and efficiency are vitally important. "In a recent two week period," Owner William Minnotte says, "we estimated a saving of twenty man-hours because our men didn't have to stop work and try to get warm around old-fashioned coal stoves. Increased productivity, of course, is also tied to the increased comfort of our employees."*

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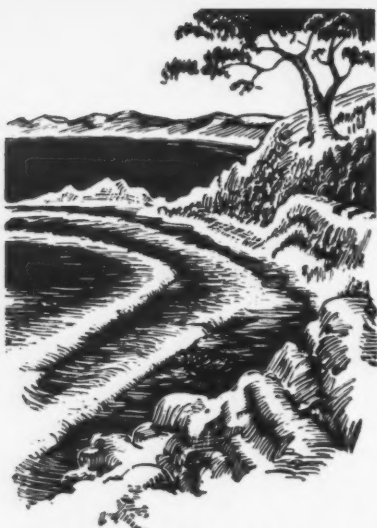
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couver. Flood stage at Vancouver is 15 feet. The actual recorded maximum height was 29.9 feet, reached twice, first on June 1 and again on June 14 with the river level remaining above 29 feet from May 31 to June 16 and above flood stage from May 18 until about the middle of July.

At the Columbia River Paper mill the 30-foot mark was chalked about the plant and removable equipment below that level marked for evacuation. The first unit to be shut down was the sawmill from which motor units were removed for storage at a higher elevation. On May 26 all machines were shut down and for the next week all hands turned to the job of protecting the plant against the ravages of flood water.

Working from lowest levels in the plant to next higher levels with water rising just behind them, crews stripped the machines, covered those left in place with waterproofing compound, and packed all bearings. Large platforms were built above the expected flood level on which were stored motor units and machine parts that had been removed, chemicals, finished paper, and other supplies.

The finishing room was elevated, the transformer bank was sandbagged, and portable gasoline driven pumps were installed inside to take care of seepage. Outside the mill buildings the dock was loaded with sand and gravel to help hold it in place. Freight cars were spotted on the

railroad siding, and rolls of finished paper were hauled elsewhere for storage. Lumber piles that could not be moved were wired in place. Power plant boilers were shut down and cooled with compressed air. The entire plant was cleaned of refuse so there

**TACOMA** — Centennial Flouring Mills plans to delay construction of its plant here to replace the mill destroyed by fire a year and a half ago, but is continuing to develop plans for the new mill. Much preliminary work has been completed and some machines have been ordered that will be installed in the mill when it is built.

F. S. Harmon Manufacturing Co. has purchased the plant of the former Northwest Woodenware Co., to expand its furniture manufacturing facilities. Conversion of the plant is expected to be complete by September 1, with a resulting improvement in production efficiency and balance.

Permanente Metals Corp. aluminum reduction plant has been running at about 5 per cent over its rated capacity in an effort to meet the increased demand for aluminum pig.

would be nothing to float into the machines. A log boom was placed all around the plant to keep floating debris from entering.

By June 3 all of this had been accomplished, and in addition valve handles on fire lines had been extended to keep them within reach. By that date, too, water had

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covered all of the plant, and supervisors inspecting the plant were rowing through the rooms housing paper making machines. The accomplishments at the Columbia River Paper mill are held to be remarkable by all of those who know the story of the work that was done.

Other plants in the pulp and paper industry that were closed or operations curtailed by the high water included the Crown-Zellerbach plant at Camas, Wash., and the Bemis Bag Co. plant and Fir-Tex plant at St. Helens, Ore. Bemis announced, as the flood waters began to go down, that its St. Helens plant would not be reopened. The company had already planned to abandon that plant upon completion of a new multi-wall bag plant at Vancouver, and all efforts will be directed toward rushing the new plant to completion rather than trying to recondition the old plant.

Farther up the river at the Hanford Works, plutonium manufacturing center for the Atomic Energy Commission, the situation was as critical as at other points. There the government-built town of Richland, Wash., which houses most of the plant's employees, was threatened with inundation. The town lies between the Columbia and Yakima rivers just above the point where the Yakima flows into the Columbia, and both streams were at high flood stage.

Fortunately for the residents of Richland, the expansion program undertaken last year by the AEC had brought into the area a number of construction contractors with large quantities of heavy earthmoving equipment. For nearly two weeks more than 100 pieces of construction equipment worked 24 hours a day to build a mile-long dike and raise highway levels in an attempt to preserve communications with the nearby towns of Kennewick and Pasco. The town was kept dry, but in spite of all efforts two of the three roads into Richland had to be abandoned.

Transportation services were among the hardest hit of all businesses in the flood area. The Great Northern Railway alone computed the cost of the flood to be more than \$1,000,000 in damages to its facilities in Montana, Idaho, and Washington. The main line near Bonners Ferry, Idaho, was washed out in ten places when the Kootenai River broke through dikes and flooded some 30,000 acres. The Wenatchee River west of Wenatchee, Wash., washed out 1,150 feet of main line which had to be replaced with a timber trestle. Additional washouts took place in the normally arid sections of eastern Washington when several flash floods occurred at the same time the rivers were at their height.

The Spokane, Portland & Seattle Railway lost about 600 feet of its main line between Portland and Vancouver in what was probably the most damaging single dike break during the flood. The railway still served as one dike protecting the war-housing project of Vanport, and with

18 feet of water on one side it gave way, completely destroying what remained of Vanport. The same break eventually led to cutting off the highway and all wire communications between Vancouver and Portland with the result that for a week the shortest route between the two cities which are normally but four miles apart was some 60 miles in length.

In Portland itself the Union Station platforms were under water and out of service, as were the freight yards on the east bank of the Willamette River. The Union Pacific railroad had to abandon use of its diesel engines at The Dalles, Ore., where tracks were under a foot of water,

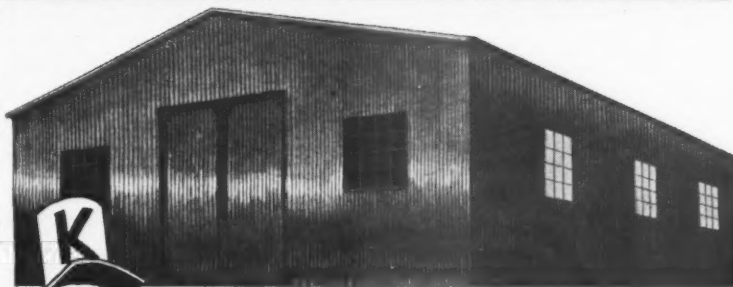
but continued its service with steam engines into the east side of Portland. The Southern Pacific railroad operated into Portland's southern limits, but the Northern Pacific line from Seattle was cut midway between Kelso and Vancouver when a large area around Woodland, Wash., was flooded after dikes gave way. Embargoes against freight into or through Portland were maintained by all railroads for several weeks during June.

As the Columbia began to rise in its lower reaches, the four airlines serving Portland abandoned the municipal airport and moved their operations to Salem, 50 miles to the south.



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## REGIONAL REVIEWS

### THE WASATCH FRONT

# Study Plan to Link Mining Areas With Tunnel Project

**Park City and Alta Districts Would Be Drained As Part of Colorado River Diversion Plan and Water Used For Irrigation; California Gets Gas**

**S**ALT LAKE CITY—A novel scheme to link mine drainage with reclamation to improve the economic feasibility of both is being investigated by the U. S. Bureau of Reclamation and the U. S. Bureau of Mines.

The plan is to incorporate a tunnel to drain the Park City and Alta mining districts into the proposed Central Utah water and power project. The Y-shaped tunnel, totaling some 21 miles, would be used for the diversion of Colorado River basin water into the Salt Lake valley.

Mining interests and the U. S. Bureau of Mines have been pondering the idea of a drainage tunnel for the Park City district for several years. But that project alone presented some formidable obstacles. One was financial, if the entire cost had to be assessed against the mine owners. The other was that such a drainage tunnel would intrude on established water rights on three water sheds and probably lead to indeterminable litigation.

But by tying it into the multiple Central Utah project, the cost could be distributed over a larger group of beneficiaries and disturbed water rights could be taken care of through a simple process of exchanges.

The mining phase of the project is being investigated by the mining division of the Bureau of Mines and this report will be incorporated into the reclamation bureau's Bonneville basin study, which is expected to be completed soon.

The proposed tunnel would be driven from the west face of the Wasatch mountains, beginning at an elevation of 5,000 feet, to a point under Alta, once a productive mining district but now known chiefly as a ski resort. From that point one branch of the Y would extend underneath the west and east Park City mining districts and the other branch would be driven to a point underneath Snake creek near Midway. This branch would connect with the proposed Bates reservoir, a park of the Central Utah project, and be used for the diversion of some 30,000 acre feet of water annually from the Colorado River basin to Little Cottonwood creek, which flows into Salt Lake valley.

The water would be used to irrigate some new lands in the valley and for municipal and industrial purposes in Salt Lake county communities lying south of Salt Lake City.

Possible uses of the tunnel, in addition to mine drainage and water diversion, would be for the transportation of ore from the mines to the Salt Lake valley smelters and of miners living in Salt Lake valley to the mines.

The mining potentialities of the project would, of course, depend upon the quality of the ore taken from the lower levels. The average depth of operations in the Park City district is now 1,000 to 1,500 feet. And some of the mines are presently involved in expensive pumping. The tunnel would provide drainage for another 1,000 to 1,500 feet, thereby making available without any pumping a deep horizon approximately equal to that which has been worked since mining started in the district 78 years ago. During that period it has produced \$376,000,000 worth of metals, mostly lead and zinc. Bureau of Mines investigators are not yet ready to estimate a value for the new ore bodies the project would make available for mining. But some of them are unofficially thinking in terms of \$500,000,000 or more.

The fact that the chief values in the district are lead and zinc, both metals in short domestic supply and strategically important from a national defense standpoint, is expected to be a favorable factor in getting appropriations if the investigations show the project to be economically feasible. Inasmuch as the ore values in the deep horizons are speculative, the government would presumably "hold the bag" for the mining phase until expected benefits were realized.

Unless some cheaper means of draining Park City mines than pumping is worked out the prospects are that production of the district will gradually diminish.

"It is the opinion of engineers familiar with the district," said one Bureau of Mines engineer, "that mining cannot long continue without some major development

to take care of the large volume of water. By the time the tunnel is completed, if started immediately, mining would be rather near to a standstill. And without some such drainage plan another valuable mining district would be lost.

Utahns have long cracked, half in fun and half seriously, that California has taken the state's water, topsoil (silt rolling down the Colorado River) and ablest young people. To these complaints there may be shortly added another: that California is now taking our natural gas.

The Western Natural Gas Co. has brought in one well in southeastern San Juan county producing 25,000,000 cubic feet daily and plans to pipe it to Needles for a connection with the Pacific Gas & Electric lines to the San Francisco Bay area. The goal of the company is enough wells to deliver 250,000,000 cubic feet per day to its California customers.

One official of the company commented that Salt Lake City has "more natural gas than you know what to do with." This was a little puzzling to local residents when Gus P. Backman, executive secretary of the Salt Lake Chamber of Commerce, announced a day or two later that Hercules Powder Co. had dropped plans for a fertilizer plant in the area "because of the shortage of natural gas."

Thermoid Rubber Company opened their new plant at Nephi, Utah, on June 9, where conveyor belting, transmission belting, V-belts, rotary hose, radiator hose, fan belts and other industrial products will be turned out. The horizontal braider in this plant is the largest and only one of its kind in the United States.

Interesting features of the plant, which covers 193,000 square feet, include an underground central power channel proceeding from the power plant down the center of the building under the floor, with branch connections reaching out into each department. All electric conduit, steam water and hydraulic pressure lines are so designed as to permit an immediate take-off at any point.



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## Board Makes Ruling On Seasonal Unions

**T**WO decisions affecting Western seasonal employment made the news lately, and one of them is expected to have far-reaching effect on union contracts, particularly in the food processing industries. The other, dealing with unemployment compensation claims in Oregon, has been appealed.

A small year-round working force cannot bind temporary canning season employees to a union shop, according to the unanimous decision of the National Labor Relations Board in Washington. The ruling was based on petitions of the Fruit and Produce Drivers Union, Local 630, for union shop elections at McKeon Canning Company, Burbank, and Winckler & Smith Citrus Products Co., Inc., Los Angeles.

Where employment is seasonal, such elections must be postponed until peak canning periods, the Board ruled, since an election at this time would permit the small group of employees now employed to bind the much larger group who will work during the peak of the canning season.

"This," the five-man Board said, "would be inconsistent with the spirit and intent of the statutory provision for union shop authorization elections, namely, that a majority of those to be bound by a union security agreement should authorize its negotiation." It was the first interpretation of its kind under the Taft-Hartley law.

At the height of the season, McKeon Canning Co. employs 375, and Winckler & Smith, 100. The petitions for union shop elections were filed in behalf of 40 year-round employees at McKeon and 10 at Winckler & Smith.

In Oregon, Columbia Empire Industries, Inc., representing the Point Adams Canning Company, appealed a ruling of the Oregon State Compensation Commission's referee which combined employers' seasons in determining the eligibility of certain claimants for unemployment benefits. Basis of the referee's decision was the seasonal employment section of the Wages & Hours Act, but an appeal has been taken on the ground that the Pt. Adams company has three separate seasons which should not be lumped into one.

Since such a ruling affects not only fish packers but vegetable and fruit canners, loggers and other seasonal employers, Robert R. McKean, manager for Columbia

Empire Industries, declared that he was appealing for a hearing before the Commission itself.

### Time Reduced For Wage-Hour Records

Employers who were formerly required to keep records four years in complying with the provisions of the Fair Labor Standards Act, need keep the records only three years now, it has been announced by the Wage-Hour Administrator.

The new regulation brings the record keeping requirement into line with the time limits on wage actions set under the Portal-to-Portal Act and with the three-year statute of limitations applicable to criminal proceedings under the Wage-Hour Act.

### Railroads Fight Full Train Crew Law

Two examples of how useless California's full train crew law can be are cited by Leo E. Sievert of San Francisco, executive representative of the Santa Fe Railway, one on his own railroad, the other on the Southern Pacific. The law requires at least three brakemen on every main-line freight train of more than 49 cars under a formula consisting of two factors, the increase in the number of cars and the grades over which the trains run.

The first case tells how these surplus brakemen may be required by law for only a few miles of the trip, as follows:

Santa Fe freight trains regularly run between Barstow and Needles, a distance of 164 miles, without a change of crews. This is all double track, completely equipped with the finest type of block signals. On the eastward track from Barstow to Needles, there are 2.8 miles of grade over 1½ per cent. There is no such grade on the westward track. This particular 2.8 miles is on a down grade in the desert near Ludlow. Diesel freight engines can handle with ease trains of 80 to 100 cars, but because of this law and the existence of 2.8 miles of slightly over 1½ per cent grade, the Santa Fe must, depending upon the number of cars in the train, employ and pay one or two surplus brakemen.

Either the company must run them from Barstow to Needles and pay them for 164

miles although the law requires them to be on the train for only 2.8 miles, and then deadhead them back to Barstow, or else stop each such train at some station near the top of this grade, pick them up, and then stop at a station near the foot of the grade to let them off. Then, in order to get them back up the hill so they can satisfy the law by riding down again, a west-bound train must be stopped twice—once to pick them up and again to let them off.

If they carried on through from Barstow to Needles, they must be paid for 164 miles full time in one direction and deadhead pay back again—for just 2.8 miles to comply with the law.

Here is the Southern Pacific case:

On the night of February 8, 1945, a Southern Pacific freight train of 64 loaded cars and 33 empties was proceeding north from Gerber to Dunsmuir. This was a four-brakeman train. Loaded on a flat car, 30 cars ahead of the caboose, was a 10-ton Army motorized wrecking outfit being moved from Fort Ord to Tacoma. This heavy piece of equipment presumably was lashed securely to the car; it was supposedly inspected by the train crew. However, through some unknown cause, the long boom of the wrecking crane slipped its moorings and swung out to the left of the car in the direction the train was moving. This resulted in a wild-swinging pendulum which in a distance of 19.7 miles demolished eleven block signals and a train-order delivery post. No member of the train crew saw this juggernaut or the damage it was causing.

### Lumber Safety Code

The International Woodworkers of America (CIO) will ask the National Safety Conference to endorse a proposal for formulation of a federal safety code for the lumber industry. Members of the IWA executive board in announcing that union delegates to the conference would submit the safety code proposal, stated that the lost-time accident frequency rate is about 100 per million man-hours as compared to an all-industry average of 14. The sawmill accident rate was said to be about 50 to 70. The National Safety Conference will meet during September in Washington, D.C.



# Supervisors Training Plan

ONE of the penalties of a large sized industry is the problem of communication with an organization, according to G. B. Stone, training supervisor, Oleum refinery, Union Oil Company of California. Aware that lines of communication within their management team were somewhat "corroded," Mr. Stone said, Union's executive group decided to improve the situation and to this end a full time supervisory training program was instituted in both of their major refineries.

Union Oil's program covers some 300 foremen in both major refineries, and two full time men, one in each plant, are responsible for them. In the development of material, assistance is given by the home office employee relations department, but aside from the salaries of these two men, with a few props, very little other expense is involved.

In starting their program, the first problem was to determine what training was actually needed by the supervisors whom the company hoped to benefit. This was done not by guesswork but by personal contact with each supervisor and foreman. Needs expressed by them were four:

1. More information about the labor contract. They wanted to know how to discipline people and keep out of trouble

with the union—how to do such things as demote people who needed demotion; how to by-pass unqualified people out of line of seniority, and how to handle complaints and grievances.

2. They wanted information about various plans provided by the company, such as the sick pay plan, retirement plan, benefit plan, etc. Supervisors felt themselves unqualified to discuss them with employees.

3. They wanted more information about the over-all company; plant information before the union's steward received it, and information that could be used in answer to the inevitable grapevine rumor.

4. They wanted some ready source of information to which they could refer in matters such as plant rules, regulations, policies and procedures.

As a starter, supervisors studied the union contract article by article in groups of 12 to 15, under the guidance of a training supervisor. Retention of the information was checked by use of various types of quizzes, and gradually foremen became, for the first time, as well if not better informed than were the union stewards.

Next, six one and one-half hour meetings were devoted to discussion of company benefit plans. To satisfy the expressed

need for additional information, a weekly "News Letter" was added to other company publications, and directed to all plant foremen. Top supervisors in each plant hold a weekly meeting to discuss current information. To answer the fourth request, a foreman's handbook was prepared, including blank suggestion sheets.

In laying out the handbook, a committee of representative foremen was formed to guide the work and make decisions on the physical layout of the book. It consists of 190 pages and attempts to cover every possible combination of circumstances that could confront a supervisor. The suggestion sheets are for use where a supervisor notes any inaccuracies or a need for clarification of a point. These are handled by the handbook committee—the result is a working manual built by the foremen themselves according to their needs.

As a further step in building Union Oil's program, questionnaires were distributed to three groups, the foremen, the superintendents, and the engineers. These covered the individual's opinion of the over-all company, the plant, labor relations policy, adequacy of tools, equipment and materials, pay, promotion, etc. No signature was required.

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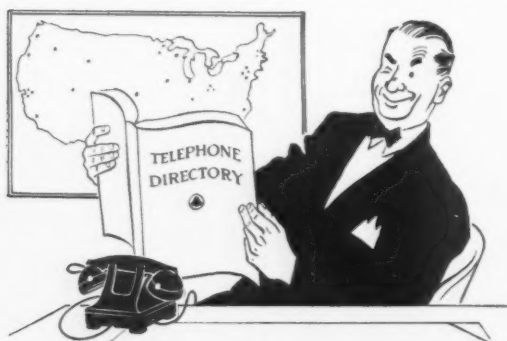
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## THE WEST ON ITS WAY

### ARIZONA

**COMMERCE OFFICE STAYS OPEN**—The Foreign and Domestic Commerce office of the U. S. Department of Commerce in Phoenix is to remain open, according to E. C. Corbell, district manager. Plans to abandon the office for reasons of economy were dropped.

**IRRIGATION WELLS PLANNED**—More than \$2,000,000 may be spent in drilling 100 new wells to meet irrigation needs of the Salt River Valley Water Users Association, according to a proposal approved by the board of governors.

**LEADS THE NATION**—New construction increased in Arizona last year more than in any other state. The \$93,700,000 spent in 1947 represented an increase of 125 per cent from \$41,500,000 spent in 1946.

**ON STAND-BY STATUS**—The mammoth plant of Goodyear Aircraft Corporation at Litchfield Park has been placed on a stand-by status by the government's munitions board and will not be sold as surplus. It consists of 15 buildings covering 630,000 square feet.

### CALIFORNIA

**NEW FOUNDRY PLANNED**—Superior Electrocast Foundry Company has under construction a \$200,000 plant on East Grand Avenue, South San Francisco. Charles Hoen, Jr., is president, and George F. Brayer, vice-president. Forty workmen will be employed by the new company. Soule Steel Company has the construction contract.

**NORWICH MOVES SOUTH**—Western divisional headquarters of the Norwich Pharmacal Co. have been established in Los Angeles, with John J. Kassenbrock in charge. Offices were formerly in San Francisco. Eaton Laboratories, a subsidiary manufacturing prescription drugs, is also locating in Los Angeles with Norwich at 4900 District Blvd.

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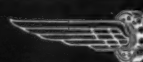
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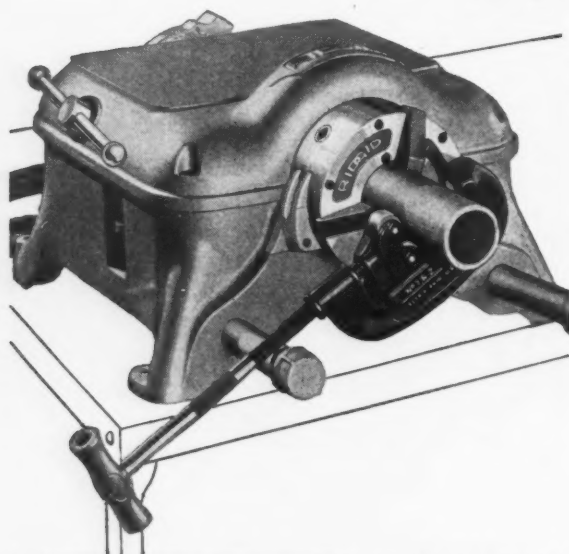


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## THE WEST ON ITS WAY

**ARROWSMITH IN NEW HOME**—New quarters at 9700 Bellanca Ave., Los Angeles, have been occupied by the Arrowsmith Tool & Die Company.

**TRUCK SERVICE STATION OPENS**—One of the largest truck and fleet service depots in the country has been opened by S & C motors, San Francisco. The plant occupies 100,000 square feet at Third, Berry and King streets, and employs more than 200 automotive specialists on a 24-hour basis. A. E. Schlesinger is president.

**GAS COMPANY PURCHASE**—Southern California Gas Company has applied for State permission to purchase the Blythe (Calif.) Gas Company for \$130,000. The proposed change in ownership would result in substituting natural gas for butane now supplied in Blythe.

**MARGARINE PLANTS PLANNED**—Lever Brothers intend to build several new margarine plants on the West Coast, it was announced recently following the purchase of the John J. Jelke Company in Chicago. The latter firm, which limited distribution of its products to 17 midwestern states, will be expanded to cover the entire country. Lever Brothers did not reveal the names of cities where plants are to be erected.

**FIRM CHANGES NAME**—Laminated Paper Boards, San Francisco, has moved to new and larger quarters at 2665 Jones St., and altered its name to Laminated Paper Products Co., it is announced by R. L. Frank, president. The new plant, built at a cost of \$250,000, is especially designed for production of grease-proof board, book binder's board and other technical paper products.

**NEW SERVICE DIVISION**—Replacement parts for the automotive industry, with emphasis on special and overload springs, will be handled by a new service division of United States Spring & Bumper Co., Los Angeles.

**REACHES HALF-CENTURY MARK**—E. D. Bullard Company, San Francisco safety equipment firm, is this year celebrating their 50th anniversary.

**MASONITE BEGINS EXPANSION**—Construction of 37 miles of private truck road in western Mendocino county will be started by Utah Construction Co. for the Masonite Corporation, to provide access to its redwood timber reserves. This is the first step in a West Coast expansion program which includes purchase of 50,000 acres of redwood timber, a 100-acre factory site near Ukiah, and negotiation of rights of way for the road, all of which will reportedly cost several million dollars.

**PLANT RUBBER ABSORBED**—Change in the name of the Plant Rubber and Asbestos Company has been announced by officials of the Paraffine Companies, Inc., parent organization. It is now the Insulation Division of Paraffine, but will remain under the management of R. H. Chase, who was vice-president and general manager of Plant Rubber. The firm, with three factories in the Bay area, makes 85 per cent magnesite and asbestos insulations and packing.

**FOUNDRY OPERATION ENDS**—Columbia Steel Company recently announced discontinuance of its foundry operations at its Torrance plant, to devote all available steel to conversion into rolled products. President J. Lester Perry stated that the company was putting all emphasis on rolled steel, and that efforts would be made to absorb the 150 foundrymen employed by Columbia before the work ceased.

**BANK EXPANDS**—A two-story and basement addition costing \$125,000 will be built for the San Leandro First National Bank. Added facilities will include 12 more tellers' windows, as well as 50 per cent more customer space.

**CONSTRUCTION STARTED**—L. A. Young Spring & Wire Co. has commenced work on its new \$1,300,000 building on San Leandro Blvd., Oakland. The new plant, together with present buildings on the site, will give the company a total of 230,000 sq. ft. of floor space. An expected production gain of 50 per cent will result in employment of an additional 500 workers in the manufacture of automobile cushions supplied to West Coast Ford and Chevrolet assembly plants.

**TRUCK-SHIPS PROPOSED**—Pacific Coast Steamship Co. has applied for Federal aid in construction of two coastwise passenger ships of radical design, capable of carrying 180 30-foot truck-trailers and 46 passenger cars in addition to 348 passengers. Seventy trucking firms are reported to have promised cooperation in rerouting truck traffic because of an expected saving of 20 to 30 per cent over present costs.

**CONSOLIDATED TRANSFER**—Production of Stinson private planes will be handled at the San Diego plant of Consolidated Vultee Aircraft Corp., following the closing of their plant at Wayne, Mich. Facilities of the latter, if not needed to establish production at San Diego, will be sold.

**NEW CALIFORNIA GRAPES**—Sale of the first carload of the new Cardinal table grape in eastern markets has been announced by the California Fruit Growers Exchange. Grown only in Arizona and the lower



San Joaquin valley, the new variety was developed by Col. Dale Bustead of Peoria, Ariz. First prices were from \$6.85 to \$10.01 per lug.

**NEW NAME FOR STEEL COMPANY**—Representing a change in name only, President Alden G. Roach has announced that Consolidated Steel Corporation is now to be known as Consolidated Western Steel Corporation. Western Pipe & Steel Co. of Calif., and Steel Tank & Pipe Co., both wholly owned subsidiaries, will henceforth be operated as units of Consolidated Western.

**RIVET PLANT EXPANDS**—The J. Schwartzman Manufacturing & Supply Co., North Hollywood, has expanded its facilities and is now set up for all types of rivets and cold headed specialties. New equipment has recently been added.



• New plant of Morris P. Kirk & Son, Inc., Emeryville, California.

**NEWSPAPER BUILDS**—An estimated \$3,000,000 is being spent by the Los Angeles Examiner for erection of additional plant space on South Broadway, Los Angeles.

**ADHESIVE PLANT**—Arabol Manufacturing Co. has opened a Southern California branch plant for the production of industrial glues and adhesives. F. Schiesl is plant superintendent. Home office of Arabol is in New York.

**NEW CHEMICAL FIRM**—Eureka Chemical Co. is a new addition to the Los Angeles chemical industry. H. A. Foster is president of the firm which will produce synthetic detergents.

**PILOT PLANT STARTED**—Titanium calcium base pigment for the paint industry will be made by San Gabriel Pigments Co., Roscoe, Calif. Production has recently begun in a pilot plant, according to H. M. Morley, president.

**EAST BAY GAS STORAGE**—Preliminary work is under way on construction of a \$4,500,000 gas holder for the Pacific Gas & Electric Co. at Pt. Isabel, Richmond, Calif. The holder will have a 17,000,000 cu. ft. capacity, and will give the northern part of the Metropolitan East Bay area its own gas storage facilities for the first time. A similar capacity storage tank, costing approximately the same amount, is currently under construction in San Francisco's Potrero industrial district.

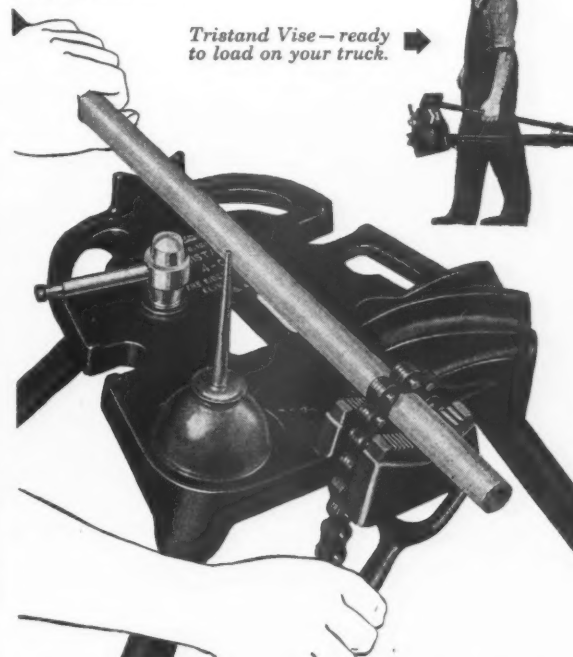
**NEW INDUSTRIES, SOUTHERN CALIFORNIA** — Ornamental Castings Co., El Monte, has started production of brass, bronze and aluminum castings. . . . Harold S. Beers is president of the new Economy Metal Fabricating Co., 2485 Fletcher Dr., Los Angeles. . . . Helga Continental Confections is the name of a new candy firm started by Peter O. Garner, 5823 W. Pico Blvd. . . . H. C. Lien Rubber Co., 1171 E. 63rd St., is manufacturing molded sponge rubber specialties. . . . Ed and Robert Smith are partners in Smith Advertising Co., 1933 W. Manchester Blvd., producing decalcomania transfers. . . . CJW Corp., 10748 Riverside Dr., North Hollywood, has started manufacture of load-set weblocks. . . . Aladdin Plastics, Inc., is occupying new 35,000 sq. ft. plant at 1601 E. 16th St., in the manufacture of plastic tableware. . . . Stanley Overby Chair Co., Inglewood, has tripled their plant to 38,000 sq. ft. for production of platform rockers, sectionals, lounge chairs, etc. . . . Exact-o Manufacturing Co., Inglewood, is occupying new 5,000 sq. ft. quarters for the making of dies, tools, jigs, fixtures and stampings. . . . General Controls Co., Glendale, is adding 9,600 sq. ft. to their plant for manufacture of automatic temperature and flow controls, thermostats and valves. . . . Jumbo Steel Products Co., Azusa, is going into production of full-sized tractors and expects to reach 200 per month by September. . . . Detrol Mfg. Co., 414 N. San Pedro St., Culver City, is moving to new quarters at 3429 Wesley St., for production of tack rags for painters, polishing bonnets, discs and mits. . . . Seastrom Mfg. Co., Glendale, is occupying their new building at 700 Senora St., making dies and stampings.

**NEW MILL NEARING PRODUCTION** — Operation of General Mills' new flour mill for the Sperry Division in Los Angeles is expected to get under way before the end of this year, with an initial capacity of 3,200,000 pounds of flour per day. H. S. Gabbert will be mill superintendent. Storage tanks with 300,000 bushel capacity are already in place.

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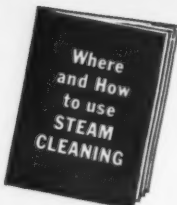
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## THE WEST ON ITS WAY

**STEEL WAREHOUSE OPENED**—U. S. Steel Supply Co. has further enlarged its West Coast operations with the opening of a new warehouse, the firm's eleventh, at 15th, 16th, Folsom and Harrison streets, San Francisco. The facility covers 260,016 sq. ft., and is equipped with electric overhead bridge cranes. Frank B. Stewart, formerly with Columbia Steel, is the new warehouse manager.

**BAKERIES PURCHASED**—Pioneer French Bakery and the Colonial Baking Co., both in Santa Rosa, have been purchased by Larraburu Bros., French sour dough bakers of San Francisco. Pioneer will change its name to Larraburu Bros. of Santa Rosa.

**STEEL PLANT ENLARGED**—Cesco Steel Products Corp. is erecting a new 38,000 sq. ft. plant at Visitacion Avenue and Evatt Street, San Francisco, for expanded facilities to manufacture steel windows and casements.

**OAKLAND WAREHOUSE**—Property has been purchased by Western Door and Sash Co., Oakland, for a glazing shop and warehouse, to cost \$125,000.

**NEW PENCIL PLANT**—Listo Pencil Corporation, Alameda, has bought a 31,000 sq. ft. site for erection of a new plant to manufacture mechanical pencils.

**FOOD PROCESSING**—Sauces, cake mix and fruit products will be made by the new "Dromedary" plant of Hills Brothers, New York, established at the Howard Terminal, Oakland.

**MORE BUILDING PRODUCTS**—A 22,500 sq. ft. building at Richmond Shipyard No. 4 has been leased by Ebo Products Co., Berkeley, for manufacture of sash and door products, and will employ 50 persons.

**STEEL FOUNDRY LEASED**—Pacific States Steel Corporation, Pittsburgh, has leased a 340,000 sq. ft. foundry from War Assets Administration. Plant will employ 150.

**LITHOGRAPHING NEWCOMER**—Rossotti Lithographing Co., Inc., of North Bergen, N. J., has remodelled the former Maritime Commission building at 5700 Third Street, San Francisco, for a new Western plant as part of a \$1,500,000 expansion program. New sales offices have been opened in Seattle and Los Angeles, as well as in Baltimore and New Orleans, and another plant is being operated at Tampa, Fla.

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Pat. Pending

**STASAFE**

**CURVED-BACK MITT**

**CURVED FOR AIR COOLED COMFORT  
CURVED FOR SURE GRIP SAFETY**

**PLUS  
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LONG-LIFE ASBESTOS MITTS  
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Write for Descriptive Bulletin No. 140

**DICKSON SAFETY PRODUCTS CO.**

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**LUMBER PLANT EXPANDS**—Garden City Lumber Co., San Jose, is currently spending \$100,000 in the expansion of their facilities for the finishing and remanufacture of lumber products.

## COLORADO

**ENLARGE STOCK YARDS**—More than \$500,000 will be spent this year to improve and enlarge Denver stockyards facilities according to L. M. Pexton, president of the Denver Union Stockyards Company.

## IDAHO

**SIMPLOT BUILDS HOMES**—J. R. Simplot, Idaho industrialist, recently awarded a \$1,000,000 contract to C. H. Elle, Pocatello, for construction of a 100-unit apartment in that city. A similar Simplot project costing \$2,000,000 is already under way at Boise.

**MILL TO REBUILD**—The lumber mill of the Atlas Tie Co., Coeur d'Alene, will be rebuilt, according to Manager John S. Richards, who said that the board of directors recently decided on the move after considering the amount of available timber and other factors. The mill was burned in May with a loss of \$300,000, partly covered by insurance.

**HAILEY CLAIMS TO BE WORKED**—Apache Mining Co., holding 20 mining properties in the vicinity of Hailey, plans to move two milling plants to the area this summer. Tailings left behind by older, more wasteful mining operations, can be reworked at a profit in the recovery of zinc and silver, according to Frank R. Plughoff, company engineer. The majority of the properties have not been worked since 1892, when they were shut down during the Cleveland silver panic.

## MONTANA

**NEW CONCRETE PLANT**—Construction has been completed on a \$10,000 building for the Elk River Concrete Products Co., Great Falls, for the manufacture of concrete pipe and other products.

**WOOL MILL PLANNED**—Twenty-one communities in Montana are bidding for consideration as the location of a proposed small wool spinning mill, according to the Montana Chamber of Commerce. Two new wool manufacturers began investigations for a site in May.

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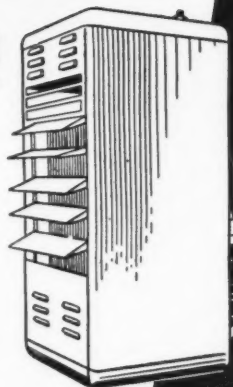
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with **"DESERT-AIR"**

A. G. A. approved for all types of gases.

**FEATURES:** 33 sq. ft. of heating surface in the 125,000 BTU model. New type burner gives maximum efficiency — is adjustable and replaceable. Heat exchanger is specially rolled of heat-resistant steel. New Bascoid valve with line voltage Solenoid and 100% safety shutoff. Wall type Minneapolis-Honeywell thermostat. Powerful, silent fan has 16" blades. Case is 24-25 gauge Paint-lock enameled steel.

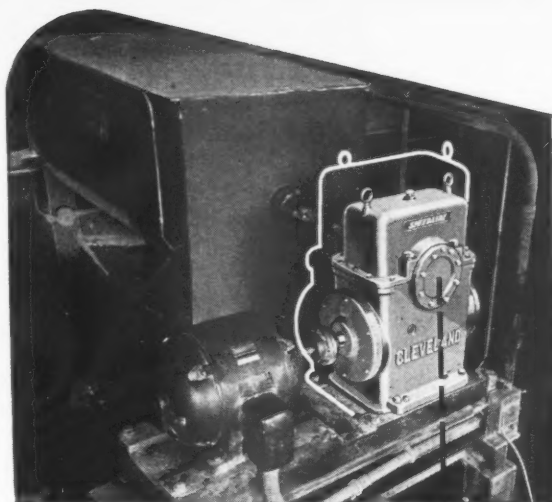
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## Cost cut \$1315 with

# **SPEEDAIRE**

**THIS** installation demonstrates the remarkable capacity of Speedaire. It drives a large paste mixer filled with water, into which bags of dry paste are dumped one at a time. Mixing each batch takes 8 to 10 hours steady running.

A conventional water-cooled worm gear drive big enough to do this job would have cost \$1315 more money, or more than twice as much. Furthermore, a standard unit would have added nearly two tons of weight and occupied almost three times the space.

Speedaire is Cleveland's new fan-cooled worm-gear speed reducer. Because it is fan-cooled, Speedaire will do more work—will deliver up to *double the horsepower* of standard worm units of equal frame size, at usual motor speeds. It can be installed economically on many applications where other types have been used heretofore—giving you the advantage of a compact right-angle drive. Speedaire gives the same long, trouble-free service characteristic of all Cleverlands.

For full description, send for Catalog 300. The Cleveland Worm & Gear Co., 3269 East 80th Street, Cleveland 4, Ohio.

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DIVISION  
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## THE WEST ON ITS WAY

**NEW PRODUCTION OFFICE**—Phillips Petroleum Co. was scheduled to open its Glacier Division production office in Great Falls about August 1. All oil production matters in Montana will be handled from the office, according to Vice-president C. P. Dimit.

**HOME OIL BUILDS**—Installation of new equipment for the Home Oil & Refining Co., Great Falls, will not be completed until October. An improvement program costing \$80,000 includes two new steam boilers and tanks with 20,500 barrels capacity. When facilities are completed, output will total 3,000 barrels a day, a 1,000-barrel gain, according to Paul Jones, plant superintendent.

## NEW MEXICO

**NEW GAS PLANT**—A daily capacity of 20,000,000 cu. ft. of gas, to be converted into approximately 20,000 gallons of gasoline, is planned for a new \$750,000 absorption plant to be built at Bloomfield, N. M., by Southern Union Gas Co. Operation is scheduled for July, 1949.

## OREGON

**NON-FERROUS ALLOY PLANT**—Morris P. Kirk, Inc., an affiliate of the National Lead Company, has announced immediate construction of a non-ferrous metal alloys plant, to occupy a nine-acre site in northwest Portland adjoining the warehouse of Bethlehem Steel Corp. on N.W. 61st Avenue. Plans call for an expenditure of between \$250,000 and \$500,000, and when complete the plant will employ 25 men.

**COLUMBIA METALS BUYS PLANT**—The \$5,000,000 plant for extracting alumina from clay, built by the government during the war at Salem, has been purchased for a reported \$742,000 by Columbia Metals Corporation, Seattle. Columbia has been operating the plant to make ammonium sulphate fertilizer since the government abandoned efforts to make alumina from Northwest clays because of high cost.

**NEW BRANCH PLANT**—Assembly of logging trailers and other equipment will be done in the new branch plant of Sternoff Iron Works on S. E. Clay St., Portland.

For . . .

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The nationally-famous CUNO Self-Cleaning Metal-Edge Auto-Klean Strainer is now supplemented by the Cuno Micro-Klean Clarification Filter. This plastic impregnated felt-type filter has a *graded density in depth* and collects more than double the filterable solids during the cartridge life, thereby increasing efficiency and cutting filtering costs.

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 OFFICES IN PRINCIPAL CITIES





**INTERNATIONAL HARVESTER EXPANDS** — A new reinforced concrete service building and extensive remodeling of present facilities in Portland will cost International Harvester Co. approximately \$125,000.

**LEASE EXTENSIONS SOUGHT**—Reynolds Metals Co., operating the Troutdale reduction plant, is negotiating with the War Assets Administration for extension of their leases on Troutdale, two plants in Arkansas and a sheet mill at McCook, Illinois.

**NEW PLYWOOD PLANT**—Construction has been started on a new \$2,000,000 plywood plant on the North Bend waterfront for the Menasha-Coos Head Plywood Corporation. Production is expected to start in about eight months, with a payroll of about 700 men. Charles Duecy, Coos Bay, is treasurer of the new corporation, a merger of the Coos Head Timber Co. and the Manasha Woodenware Co.

**GENERAL MOTORS BUILDING**—Plans have been completed for construction of a \$275,000 office, warehouse and storage garage for the truck and coach division of General Motors Co. on Dawson Street, Portland. J. G. Watts Construction Co. is general contractor.

**PLYWOOD WAREHOUSE**—A one-story Portland warehouse building featuring the use of plywood is planned by United States Plywood Corp. stressed-skin plywood and an interior displaying plywood panels.

**PRECISION PARTS CONTRACT**—Iron Fireman Manufacturing Co., Portland, has been awarded a large contract for manufacture of precision parts for the Boeing Aircraft Co., Seattle. So extensive is the parts program that Iron Fireman will increase its staff to about 500 persons.

**LUMBER MILL PLANNED**—Early construction is contemplated for a new modern sawmill at Springfield to replace the C. W. Guerrier mill that burned in May. The new plant will be managed by M & M Wood Working Company, operators of the former one.

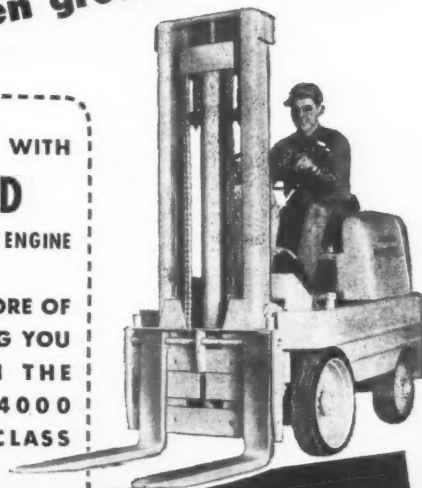
**LIGHT TRACTOR PLANNED**—Perrin Tractor & Equipment Co., which moved to Portland from Kansas City, Mo., in 1947, will begin production of a new lightweight four-wheel tractor. Schedule calls for 400 tractors per month.

**CANNING PLANT SOLD**—The former Anderson Packing Co. plant at Warrenton has been purchased by O. J. Edwards, Seattle commercial fisherman, who has filed articles of incorporation as West Coast Fisheries, Inc.

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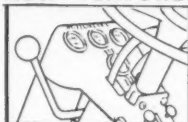
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**Exclusive Uni-Lever Control**  
Single lever located on steering column controls lifting and tilting mechanism.



**All Controls and Instruments Clustered in Front of Driver**  
An exclusive Mo-Tow-Lift advantage. Gives accurate control of every operation.



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Quick, easy removal of seat frame and side panels exposes engine and hydraulic controls. Loosening of six bolts allows inspection of operating mechanism.

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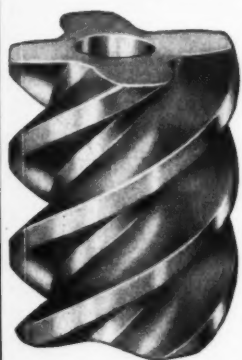
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for transmission  
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World famed in general service for strength and long life. A flexible steel-hinged joint, smooth on both sides. 12 sizes. Made in

steel, "Monel Metal" and non-magnetic alloys. Long lengths supplied if needed. Bulletin A-60 gives complete details.

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**BELT FASTENERS AND RIP PLATES**

For conveyor and elevator belts of all thicknesses, makes a tight butt joint of great strength and durability. Compresses belt ends between toothed cupped plates. Templates and FLEXCO Clips speed application. 6 sizes. Made in steel, "Monel Metal", non-

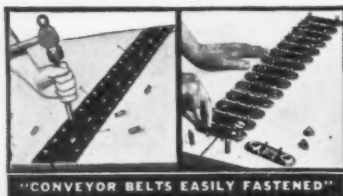
magnetic and abrasion resisting alloys.

By using Flexco HD Rip Plates, damaged conveyor belting can be returned to satisfactory service. The extra length gives a long grip on edges of rip or patch. Flexco Tools and Rip Plate Tool are used. For complete information ask for Bulletin F-100.

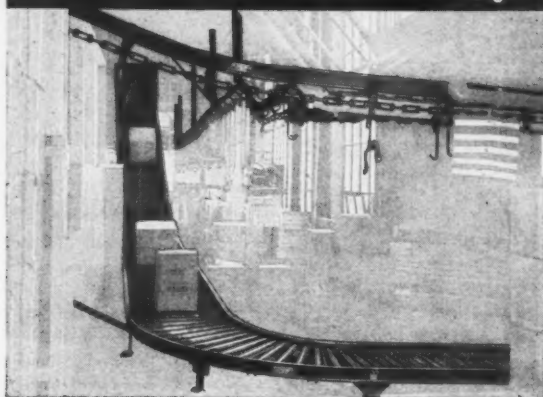
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Be both judge and jury. Why not let Buschman Engineered Conveyors sentence YOUR slow moving material to a life of speeded production? A complete line of conveyors for practically every kind of industry. Our engineers will gladly consult with you on your handling problems. Write for additional information.

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West Coast Distributors

**THE WEST ON ITS WAY**

**UTAH**

**ZELLERBACH BUILDS**—Early construction for Zellerbach Paper Company of new divisional offices and a distributing plant at Salt Lake City has been announced. The projected structures will occupy 1½ acres.

**CONTRACT TO EIMCO**—Fabrication of vacuum filter units for the Los Angeles sewer system will be done by the Eimco Corporation, Salt Lake City, under a \$450,000 contract. Steel for the work will be obtained from Geneva, according to Joseph Rosenblatt, Eimco president.

**OPERATIONS STARTED**—Western Steel Company has commenced fabrications at its new plant at 631 W. 17th South, Salt Lake City, and by early 1949 expects to have a second structure completed on the site, according to R. G. Derrick, president. The firm is currently working on steel for the new refinery for Standard Oil Company of California.

**EXPANSION PROGRAM**—Garfield Chemical Company has announced that funds to be spent for expanding their facilities in Utah have been increased from \$4,000,000 to \$6,800,000.

**GAS RATES REDUCED**—Domestic and small commercial users of natural gas in Utah have been granted a reduction in rates amounting to \$1,399,158, following an order by the Public Service Commission permitting the Mountain Fuel Supply Company to apply new schedules. Industrial consumers, however, are being raised from 10 to 50 per cent. Industrial and commercial users will continue to be limited to 600,000 cu. ft. per year.

**WASHINGTON**

**CARNEY PACIFIC RESUMES**—Western operations of the Carney Pacific Rockwool Company were expected to begin about August 1 in the firm's new Longview plant, built to replace the one seriously damaged by an explosion in May.

**NEW ENGINES ORDERED**—Twelve new diesel-electric locomotives costing \$5,000,000 have been ordered by the Great Northern Railway. Delivery is scheduled for October.

**Maas**

The Only Manufacturer of  
Phosphates and Phosphoric  
Acid In The Entire West

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**Maas PYRO**

(Tetrasodium Pyrophosphate)

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"ARMED FOR CHEMICAL SERVICE"



WESTERN INDUSTRY—August, 1948

**PORT PLANT STARTED**—Construction is under way on the new cold storage plant for the Port of Tacoma. James W. Purvis is contractor, and the building permit issued calls for \$350,000 worth of construction.

**WOODENWARE PLANT SOLD** — Former plant of the Northwest Woodenware Co. has been sold to F. S. Harmon Manufacturing Co., according to J. H. Kitlar, president. Dry kiln capacity of the additional plant will give Harmon 1,500,000 feet more of lumber per month. The acquisition of the plant means employment of 150 additional workers, bringing Harmon's total payroll up to 750.

**FLOUR MILL TO REBUILD**—Eventual construction of a new Centennial mill at Tacoma to replace the one which burned a year ago, has been announced by Moritz Milburn, Centennial president. More than \$100,000 has been spent on surveys and preliminary work preparatory to starting the new Tacoma building.

**STOVE WORKS TO RENTON**—The Hagg Manufacturing Co. has begun production of a line of heaters in the City Industrial building, Renton.

**CANNING PLANT STAYS SHUT**—Eastern Oregon Canning Co., Walla Walla, will not operate during the current pea-canning season, stockholders have been informed.

## WYOMING

**TO BUILD OIL PIPE LINE**—Bay Petroleum Corporation has applied for authority from the Wyoming public service commission to construct pipe lines costing \$850,000 to connect their Lodgepole oil field in Weston county to other lines which will provide outlets to Bay's Denver refinery, to Cheyenne, and other refineries. The lines would have 10,000 to 12,000 barrel capacity per day.

**ELECTRICAL EXPANSION**—Wyoming Rural Electric Company has been granted a \$490,000 loan by REA, for construction of 141 miles of new power lines in Weld County, Colo., extensions in Laramie County, Wyo., and Banner and Kimball counties, Nebraska.

**NEW HOMES FOR CASPER**—Building permits for 50 additional homes, valued at \$384,000, have been secured by Roy Odell Homes Co. The firm is currently constructing 50 others as part of a new real estate development.

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# WESTERN TRADE WINDS

NEWS ABOUT THOSE WHO DISTRIBUTE AND  
SELL INDUSTRIAL EQUIPMENT AND MATERIALS

Leonard P. Fuller, Jr., San Francisco, and Richard H. Krueger, Pasadena, appointed district representatives for Hertner Electric Co., Cleveland, Ohio. They will handle the firm's motor and motor-generator battery-charger business in California.

Mel W. Lewis, for ten years with General Controls Co. in San Francisco, has been made branch manager of the Cleveland, Ohio, factory branch office of the company.

John T. Porter, Santa Barbara, appointed Pacific coast representative for the American Type Founders Sales Corp.'s department of education. He will have offices at 470 E. Third Street, Los Angeles.



Fred Templeton named manager of the sugar department of Parrott & Company, Los Angeles, selling agents in California for the Holly Sugar Corp.

Charles F. Hosford, Jr., is named West Coast manager for the Chemical Division, Koppers Co., Inc., with headquarters in San Francisco.

W. J. O'Connell & Associates, technical and engineering consultants to industrial management on biological, hydrological and chemical engineering problems encountered in connection with planning industrial projects and the use of wet process operations, have moved their offices to larger quarters at 109 Stevenson Street, San Francisco.

McCormack & Company, 450 Ninth St., San Francisco, have been appointed Northern California wholesale distributors for Motorola electronic products, according to the announcement of J. M. Tuttle, regional sales manager for Motorola, Inc.

Jack J. Kolberg Co., Seattle, have been appointed Northwest representatives for the Hanafin Corporation, Chicago, manufacturers of hydraulic and pneumatic power and production equipment. The Kolberg company will cover Washington, Oregon and Idaho.



Vern Peak promoted to assistant sales manager for Cee-Bee Chemical Co., Inc., Huntington Park, Calif.

Lloyd J. Bohan appointed Los Angeles representative for Claud S. Gordon Co., Chicago. He is former secretary of Chicago chapter, American Society for Metals.

Harry F. Haldeman, Inc., Los Angeles, is new distributor in southern California for Dravo "Counteflo" heaters, forced-air installations used in commercial and industrial buildings.

Harold A. Dresser, associated with the manufacture of cooling towers for 22 years, has recently joined the sales staff of the Los Angeles office of The Marley Company, Inc. The firm has announced change of its Los Angeles office to 810 S. Spring St.



George Samson and Charles Sweet have been appointed to the sales staff of Soule Equipment Company. Mr. Samson was formerly associated with R. G. LeTourneau, Inc., Longview, Texas, and Mr. Sweet comes from the War Production Board and previously from John Deere Company.

William D. Nesbeitt named mgr. of Spokane district office for general machinery division of Allis-Chalmers Manufacturing Company, succeeding A. R. Kohlmetz, who becomes special representative.

The Meriam Instrument Company, Cleveland, Ohio, will have two exclusive representatives in California: G. M. Cooke, 270 Fremont Street, San Francisco, and Charles Meriam, 6311 North Figueroa Street, Los Angeles.

John H. Hull, Berkeley, California, has been named sales representative for American Airlines in San Francisco.

## MORCK SPEED-LINE BRUSHES



"The Choice of Master Painters from the Statue of Liberty to the Golden Gate"

### For the BIG JOB in All Industries

Faster painting, plus longer brush life is what you want... and that's what you get when you specify Morck Speed-Line 100% Pure Hog Bristle Brushes. They have the capacity and stamina to speed up work on the production line and in all maintenance work.

Morck's Speed-Line Brushes are built to the specifications of master painters... Designed with the features of feel, balance, toed-in ferrule... 100% Pure Hog Bristle... thin handle and built by master brush craftsmen to "lay the paint on" with speed and perfection.

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Morck Brush Division

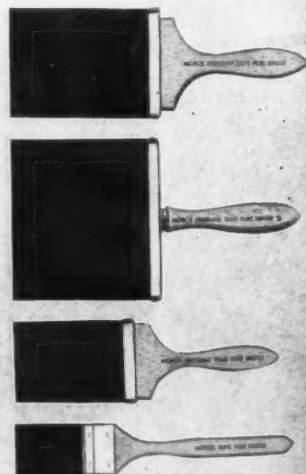
PITTSBURGH PLATE GLASS COMPANY

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San Francisco 3

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Morck's big-4 are a must for painters... Stucco, Wall, Enamel and Sash. Brushes you'll be proud to own.



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# S

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WASHERS • SLEEVING • TUBING • TAGS  
MARKERS • YARN • LUGS • MICA • RODS  
SHEETS • TUBES • PRESSBOARDS • TOOLS  
SLOT WEDGES • CARBON BRUSHES  
BALL BEARINGS • SLEEVE BEARINGS  
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DOW-CORNING; ELIZABETH WEBBING MILLS; CON-  
TINENTAL WIRE; AEROVOX CORP.; HOOVER BALL  
BEARINGS; IDEAL INDUSTRIES; INSULATION MAN-  
UFACTURERS; KIRKWOOD COMMUTATOR; THE  
STEELDUCT; MICA CO. OF NEW YORK; MIN-  
NESOTA MINING & MFG.; NEW JERSEY  
WOOD FINISHING; OHIO CARBON;  
OWENS-CORNING FIBERGLAS;  
AND TAYLOR FIBRE.

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Main 4161

B. T. Rupp has been appointed Southern representative of the Fresh and Air Company of Chicago; he will cover Southern California.

H. M. Parker & Son, 217 West Colorado Boulevard, Glendale, California, have been appointed distributors for All-State Welding Alloys Company, Inc., New York.

I. F. Schnier Company, Inc., have combined their Seattle office and warehousing facilities as a complete branch office. The address is 116 Fifth Avenue North.

Taylor & Spotswood Company, San Francisco steel distributors, have opened a branch sales office at Room 1006, Bank of America Building, 12th and Broadway, Oakland, California. Charles M. Strong will be in charge of the new office.

Harold W. Bauer, Sacramento, has joined the sales staff of the Ball Motor Company, Sacramento distributors of White Trucks.

Hugh A. Dewar appointed district sales manager of the pole line hardware sales division of Oliver Iron & Steel Corp., with headquarters in Los Angeles, to succeed John A. Duncan, retired.

Columbia Steel Company, San Francisco, have appointed the following to positions as product managers in the distribution unit of the general sales department: Robert R. Wolfenden, R. E. Smice and W. M. Jarrard.

L. F. Perrine has been appointed to newly created executive post of manager of the paint division of The Paraffine Companies, Inc., San Francisco.

Arthur (Gin) Austin has been added to the sales staff of Maywood Glass Company, division of Anchor Hocking Glass Corporation, Los Angeles; he will work from the San Francisco office at 245 California Street.

Eastman Kodak Company of Rochester, New York, have named the Wilson & George Meyer & Co., San Francisco, representatives in charge of the sale of Kodapak I and II in thin sheets which has been especially suitable for wrapping a variety of products.

Edward A. Altshuler named advertising manager for Snowden Chemical Co., Los Angeles.

William G. Hewitt appointed manager of the San Francisco office of Pacific Chemical & Fertilizer Co. A. C. Button named traffic ass't.

Charles W. Cowman appointed advertising manager and member of the management committee, Interstate Traction & Equipment Co., Portland.

M. M. Frank named general superintendent of transportation, San Francisco headquarters of Railway Express Agency, succeeding J. P. Foster, promoted to assistant to vice-president in place of H. H. Smith, retired.

Smith-Davis Company, Los Angeles, has appointed Dr. K. J. Keating as manager, and Murray M. Win has been added to the sales force.

Ford C. Rea has been appointed Los Angeles representative for Harry E. Stocker Associates, Inc., New York.

Harold E. Howard has purchased Republic Electric Weld Casing and Tubing's interest in the Howard Supply Company of Los Angeles. Mr. Howard and his associates now own all of the outstanding capital stock of Howard Supply Company; Mr. Howard continues as president of the company.



Harold W. Bauer

# CUT YOUR COSTS up to 30%



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Westinghouse Electric Corp.  
Sunbury, Pa.

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**SAVE** wasted effort . . . handling  
time . . . and floor space.

**SPEED** flow of materials for  
greater production.

• It's a fact. Materials-handling costs  
actually eat up to 30% of your manu-  
facturing dollar. And — there's nothing to  
show for it in your finished product.

• That — for management — is a tough  
headache.

• But this is also an incontrovertible  
fact. Lamson Conveyors have drastically  
cut materials-handling costs in thousands  
of plants. (The Westinghouse Plant above  
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LAMSON Pneumatic Tubes**

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materials on Lamson Conveyors. Save costly mes-  
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**In One Plant Alone  
LAMSON TUBES Saved  
\$150,000 in one year**

The ALLEN-BILLMYRE DIVISION of Lamson  
Corporation supplies single and multistage blowers  
and exhausters for all industrial uses. 1/2 to 200  
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# NEW METHODS, MATERIALS, EQUIPMENT

791

## Automatic Segregator Sorts by Button Control

Containers in varying sizes, brands, grades, or colors can be systematically sorted into individual groups, regardless of their original order, by the new FMC Automatic Segregator, a development of Food Machinery Corporation, Riverside, California, for use in packing houses, canneries, railway terminals, post offices, warehouses, and industrial assembly lines.



The machine's original purpose was for segregating filled storage boxes in California lemon packing houses. These plants sort lemons to color, color being a measure of maturity, and then send the fruit to storage rooms for final curing and ripening. The boxes must be segregated for proper packing order. Food Machinery Corporation is now extending the equipment's use to other industries with costly sorting problems.

792

## Westinghouse Motor Is Wound-Rotor Type

A new wound-rotor Life-Line induction motor of open drip-proof construction is available from Westinghouse Electric Corporation, Pittsburgh, Penn., in ratings of 1 to 15 hp (Frames 203 through 326). The frame is rolled from steel plate and the feet are pressed steel. The pulley end bracket is pressed steel and the front end bracket is close-grained gray cast iron. Rotor core consists of punchings riveted into



a solid structure and held on the shaft by a shrink fit, and rotor windings have coils threaded into partially enclosed slots. The balanced design and rugged construction of this motor make it especially useful for driving compressors, plunger pumps, positive pressure blowers, or for bringing heavy loads up to speed.

793

## Rubber Floormat Acts As Cushion for Standees

Colonial Rubber Company, Ravenna, Ohio, have further improved the rubber mat which they manufacture. This mat, especially designed to alleviate fatigue of employees from long hours of standing, is made of smooth rubber on top, while the underside is a honeycomb of tiny rubber cells which raise the mat off the ground enough to provide an air cushion effect when stepped on. The number of these cells has now been increased to over 2,000, giving the mat greater resiliency and ability to handle heavier weights than before, with the same shock absorber action. These mats come in 16 by 23½ inch sizes, and can be cleaned with soap and water.

794

## Steel Reinforces Storage Shelves

A new line of shelving is composed of steel uprights bisected by wooden shelves which are themselves reinforced with steel. Its construction makes it unusually sturdy and safe, and it is rigid and free standing, requiring no bracing to wall or ceiling. The shelves are put together with the Lyon Shelf Clip and Stud, and its manufacturers, Lyon Metal Products, Inc., Aurora, Illinois, claim this assembly with the absence of bolts and nuts makes it much easier to adjust or knock down, in addition to making the shelves more solid and secure to the uprights.

795

## Pallet Truck Is Motorized

A pallet-handling type of truck, the Truck-Man Pallet Toter, has been added to the line of gasoline-powered material handling equipment put out by the Truck-Man, Inc., of Jackson, Mich. The truck is powered by the "AV" 3 h.p. Wisconsin engine, and as with this company's other equipment, the operator rides with the load. Simplicity of operation is the feature stressed by the manufacturer, with all con-



trols, including the brake, incorporated in the single transmission lever, and speeds in either direction running from creeping upward to 3 miles per hour. Current production is concentrated on 48-in. forks, which are said to handle 80 per cent of pallets now in use, with other sizes available.

796

## Vise Pliers Saves Bruised Knuckles

A finger tip release of a new type distinguishes "Gripso" pliers, put out by H. R. Basford Company, San Francisco. The release enables the user to unlock the pliers from any position with one finger, and is designed to prevent handles leaping apart,



placing complete control of the tool in one hand. It also features new jaw construction (a flat upper, and curved lower jaw) and a double action adjusting screw, making it possible to adjust the tool quick-

ly for ratchet or plier action, and adaptable as a pliers, hand vise, net wrench, pipe wrench or clamp, especially useful in hard-to-get-at places

797

### Chime Hooks Adjust On New Hand Trucks

Barrels and kegs of different heights can be locked securely in place on the new hand truck made by General Scientific



Equipment Company, Philadelphia, Penn., by use of the two adjustable chime hooks on the truck. This hand truck is durable, although light, and balanced to carry most of the load on the wheels. It has a lug base and can be had with either rubber tires, or—if acid and oil resistant wheels are needed—aluminum wheels.

798

### Lubricator Valve Measures Exactly

A lubricator valve delivering a positive metered amount of oil or grease to each bearing in lubricating systems is put out by Titeflex, Inc., Newark, New Jersey. A fully hydraulic, through flow valve, with no pockets or crevices to retard lubrication,



it dispenses all lubricants from light oil to heavy greases through the same valve without alteration, and is completely inclosed to prevent leakage, and to eliminate the possibility of contamination to the lubricant from outside sources. It can be used for trucks, buses, road machinery, mining equipment, farm machinery, machine tools,

and other production equipment. It is felt that by eliminating the possibility of human error, the valve increases machine efficiency and insures the safety of maintenance men, and also prevent bearing failures due to underlubrication.

799

### Open-end Ratchet Wrench For Hard-to-Reach Jobs

A temper and time-saving tool developed to meet a wartime need is the T.A.C. open-end ratchet wrench, manufactured exclusively for C. J. Hendry Co., San Francisco. Originated for shipboard use, it was quickly adopted by aircraft and auto-

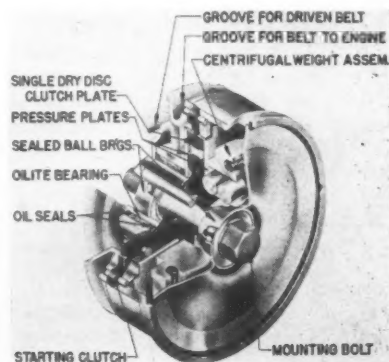


motive manufacturers because it will operate in a  $71\frac{1}{2}$  degree arc or less, making it ideal for work in restricted areas. The manufacturer reports that a large West coast automobile plant is using T.A.C. in 17 different operations, while Douglas Aircraft is said to have cut the time on a job formerly requiring three hours to five minutes. Ratchet heads, sockets and accessories come separately or in sets, and an adapter allows use of standard sockets.

800

### Clutch Geared to Half Engine Speed

Now in quantity production is a new automatic clutch, 6 inches in diameter and weighing only 6 lbs. net, for operation on engines up to 3 h.p. It is actually a dual clutch built into a single compact unit, combining a single plate dry disc for driving with an overrunning mechanism which is used for cranking the engine when it is



used on vehicles. This piece of equipment is one of 19 automatic clutches and transmissions developed by Salsbury Corporation, Los Angeles, for particularized industrial and vehicular applications, and was especially developed for the Whizzer Bike Motor.

801

### Air Control Valve Has Variety of Uses

A new 3 and 4 Way Master Air Control Valve for air cylinders has been announced by the Valley Tool Company, Los Angeles. Designed to eliminate some of the common problems experienced with air valves, all steel parts of this one are made entirely of stainless steel, comes in sizes to accommodate  $\frac{1}{4}$  to 1-inch pipe, and by the addition of accessories may be hand and foot operated with neutral, by reciprocating solenoid or by remote poppet. Valley's Bulletin 11 gives complete data.



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# Reading Guide For Western Management

A service for all management levels . . . current literature surveyed and appraised by the faculty of the School of Management, Golden Gate College

## Labor-Management Cooperation And How to Achieve It

By E. J. Lever, Director, Labor Education Association, and Francis Goodell, Management Consultant. Harper & Brothers, New York, 1948. \$2.50.

This volume of 137 pages is devoted to a discussion of joint labor-management production committees as they functioned during the war. In the words of the introduction, "this book is designed as a work bench upon which the tools of teamwork that have been tested by experience are laid out in plain sight."

"The purpose of the Joint Production Committee is to use everyman's facilities—to stimulate, develop and implement everyone's participation—for the good of the enterprise and all those engaged in it. It is composed of an equal number of management and labor representatives." Various phases of the JPC are taken up in turn—organization, conduct, the teamwork approach and a critical analysis of piecework. Four supplements tell how to get the committee going and suggest a training program.

Inquiries made by this reviewer did not produce any information about the Labor Education Association, but a biographical sketch of E. J. Lever revealed that for a number of years he has been connected with the CIO, which might partially account for the opinions expressed by the authors that "without a union, as without management, effective teamwork is almost impossible," and that the Joint Production Committee is a substitute for personnel functions "insofar as they alone attempt to better the morale of the whole group."

Some plants might very well stand to profit from such a scheme as the JPC. This book should prove most useful as a guide to all individuals concerned with such a project in helping them to get it started and to make it work.

Reviewed by:

THEODORE B. LYMAN  
Labor Relations

## Accountants' Writing

By John Mantle Clapp. Ronald Press, New York, 1948. \$2.00.

Accountants and others who write their company's story in one form or another, and who have often complained about the lack of reference materials to guide them, will be pleased to see this new book, written just for them.

Mr. Clapp's style of writing is clean and brisk, and his book makes good reading whether you need the information or not. And most of the information is there. He gives us a formula for measuring our

thought units, making a plea, of course, for more plain talk in our writing. By using this formula on our present reports we are able to grade them in the light of readability and style. Mr. Clapp is well acquainted with the jargon of accountants and tells us how to say what we mean a little more clearly. There are excellent discussions of word, sentence, and paragraph length. The author has the ability to make us feel that he is sitting right down with us, discussing this whole business of saying what we mean—and he does it in such a way that we want to do exactly what he says.

It is, however, a little disappointing to reach the last half of the book. Mr. Clapp devotes many pages to specimens of writing for clients and associates, and we begin to wonder right off why so much of this material is included, since his discussions which follow the specimens fail to tell us how they could have been improved. These writings are treated with the "formula" which I just mentioned, and compared with a non-technical editorial which appeared in the *New York Times*. If you're diligent enough, however, you should get the point.

There is no question that the book is a good start, and one which is long overdue. It should make an excellent training course for young report writers in accounting, marketing, or any form of research activity—and it ought to help others out of a "jargon rut" they may have gotten into.

Reviewed by:

ROY W. POE  
Business Writing and  
Office Management

## Briefer Guides From The Management Library

### Executive Development Program

By E. W. Reilly & B. J. Muller-Thym. An article in "Personnel," May 1948.

To meet the problem of discovering and developing future executives, many companies are establishing executive development programs as an integrated part of everyday operations. This article discusses the requisites of a successful program. It will be followed by one on training methods.

### Consultants: Managers Sum Up Pros and Cons

An article in "Modern Industry" June 15, 1948.

As business gets more and more complex, it is increasingly necessary to obtain outside help for special jobs. This article offers six steps to be followed in order to get full value out of consulting services. It also reports the results of a poll showing what gripes management has about con-

sultants, as well as the benefits which can be obtained from consulting services.

### Who Will Fill Your Shoes When You Retire?

An article in "Supervision," May 1948.

Here are the results of a survey of executives, conducted by the University of Wisconsin, showing what factors are most necessary in selecting and training successors. The serious problem of executives in higher age groups who are not training understudies is discussed.

### Trends in the Employee Publication Field

By R. D. Breth. An article in "Personnel," May 1948.

American industry spends nearly \$30,000,000 a year on employee publications and finds it a worthwhile investment. Underlying the six distinct trends, discussed by the author, is the over-all trend toward complete recognition of the employee publication as a tool for improving industry's human relations.

### Financial Organization

By D. J. Erickson. An article in "Credit & Financial Management," April 1948.

What are the qualifications of a good treasurer? What are his responsibilities? The author answers these questions in this discussion of treasury department functions.

### Domestic Consumer Markets

National Industrial Conference Board, 1948 (pamphlet)

A chart study which spotlights the economic variables that shape the domestic consumer market. In graphic form it analyzes changes in population, production, supply of money, distribution of income, and consumer habits.

### Industry's Terms & Conditions of Sale

National Industrial Conference Board, Studies in Business Policy, No. 26, 1948 (pamphlet)

This report reviews trends in industry's cash discount terms, and lists discounts now in effect in more than 400 companies.

### Survey of Personnel Practices in Los Angeles County

Compiled by R. O. Sensor & M. F. Martin. Bulletin No. 14, Industrial Relations Section, California Institute of Technology (pamphlet)

A survey undertaken to provide data on area practice with respect to work schedules, premium pay, holiday pay, shift differentials, job evaluation, and incentive pay. The results are based on returns from 524 companies employing 531,143 employees.

### Rebuilding the World Economy

By Norman S. Buchanan & Friedrich A. Lutz, Twentieth Century Fund, New York, 1947. Price \$3.50.

This book surveys the present situation and previous experience in world trade and foreign investment; the possibilities of new agencies such as the International Bank for Reconstruction and Development, and the International Monetary Fund; the hazards of foreign investment under world conditions today; and the need for multilateral trade.



# HELPFUL LITERATURE

**For the plant operator  
who wants to keep informed**

2404

**Signode "Answer Book"**—A 28-page pocket manual on how to pack and ship products with safe, economical protection. Job-proved strapping methods are described and illustrated for all types of products, as well as an outline of Signode's Six-point System of Planned Protection. *Signode Steel Strapping Co., Chicago, Ill.*

2405

**Extinguishing Liquid Fires Effectively** is explained in a new 20-page catalog, which contains pictorial illustrations of the chemical's action on the fire and charts showing the characteristics of approved hand fire extinguishers. *Ansul Chemical Company, Marinette, Wis.*

2406

**Cleaning Your Car**—Fleet and bus operators, service managers and car dealers alike will be interested in a new booklet, "How to Cut Automotive Cleaning Time and Costs," put out by *Turco Products, Inc., Los Angeles, Calif.* It covers engine and chassis cleaning; rust and scale removal; body washing and care; preparation for painting and paint removal; and general shop and building maintenance.

2407

**Pallet Handling**—A comprehensive new 20-page bulletin covering pallet-system applications, pallet truck models and recommended pallet design, gives an informative picture of the pallet's uses in industry: hauling goods from one process to another, hauling finished goods to the shipping room and storing goods both within the plant and in the plant yard, to name a few. It contains drawings and text on recommended pallet design and advice on various types of hand trucks to be used with the pallets. *The Yale and Towne Mfg. Co., Philadelphia, Pennsylvania.*

2408

**Western Pine Association Directory**—Publication of a new edition of their Directory of Membership as of June 1 has been announced by the *Western Pine Association*. The directory lists 256 firms, their locations, sales office addresses and a percentage breakdown of their production by species. The booklet also gives a listing of the staple products handled and factory products and specialties. The Association will send copies if you write them at *Yeon Building, Portland, Oregon*. The directory may be obtained either flat, measuring 8½x11 in., or folded to 8½x3½ in.

2409

**Drill Jigs**—A recent catalog on this subject is available to industrial plants and shops upon request from *Acme-Danneman Co., Inc., New York*. This catalog (No. 49) is well illustrated, describing more than 50 standard styles and sizes of jigs, and contains engineering data that should prove helpful to the tool engineer and designer in saving long hours of jig and fixture design and speeding up machining operations generally.

2410

**Batteries for Industrial Trucks**—*Gould Storage Battery Corporation, Trenton, New Jersey*, have prepared two new six-page technical brochures with illustrations detailing the salient

features and engineering specifications of their "Thirty" and "Kathanode" batteries, for use in industrial trucks.

2411

**Safety on the Job**—"Your Guide to Safety When Blasting" and "Your Guide to the Safe Use of Hand Tools," two new pocket-size book-

lets just published by the *Accident Prevention Department, Association of Casualty and Surety Companies, New York*, are part of a series of safety publications designed for employees of various industries and businesses. They also contain off-the-job safety tips. Copies of these booklets may be obtained at cost through member companies of the Association.

2412

**Electric Controls Described**—Full information on a comprehensive line of resistors, and on rheostats of the close-control, ring-type and heavy duty plate-type, including dimensional data and basic resistor formulas, is given in a new catalog, along with information concerning a complete line of radio amateur relays for standard applications. The catalog also contains instructions for the amateur on how to build his own Transmitter Control Panel. *Ward Leonard Electric Co., Mount Vernon, N. Y.*

## NOPAK Presents FLO-TROL Speed-Control

—Valve—

*Designed for*

- ✓ MORE ACCURATE CONTROL OF CYLINDER SPEED
- ✓ PRECISION AND STABILITY OF ADJUSTMENT
- ✓ EASY INSTALLATION

The new Flo-Trol Valve not only meets the need for more accurate control of cylinder speeds, but provides many operating and installation advantages:

- Quick, Easy Adjustment — without tools, no screws or lock-nuts.
- Greater Capacity — six times that of conventional valves.
- Precision Adjustment — remains stable, because of large seating area.

- Easy Installation — end-nut functions as pipe union, makes Flo-Trol easy to install or remove in "tight places."
- Rust and Corrosion Proof — all-bronze construction.

Write For Illustrated Bulletin

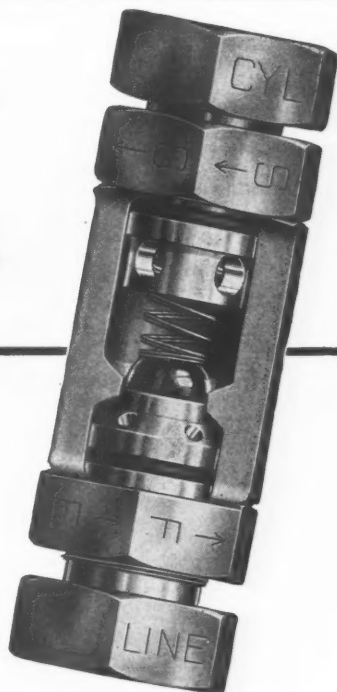
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your nearest NOPAK  
Representative, write  
for his name and  
address.

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VALVES AND CYLINDERS  
DESIGNED for AIR and HYDRAULIC SERVICE



A 5437-1P-AA



## DC 44 Silicone Grease for reliable permanent lubrication

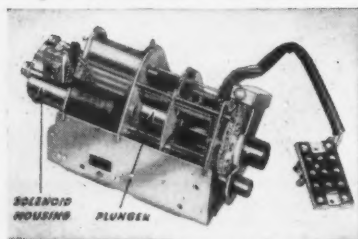


PHOTO COURTESY MOTOROLA INC.

DC 44 Silicone Grease permanently lubricates the plunger-solenoid contact surfaces in this Motorola Auto Radio push-button tuner.

Actual performance is the only true measure of a lubricant's quality. That is why more and more manufacturers are specifying Dow Corning Silicone Greases for their lubrication problems. Their tests show that longer lubrication life, greater oxidation resistance, elimination of gumming, and indifference to temperature extremes are all characteristic of the silicone greases.

Motorola Inc. of Chicago had a lubrication problem in their auto radio push-button tuner. The tuning is accomplished by a solenoid and plunger with a dash-pot action between the two for smoother operation. A thin film of the lubricant selected had to be permanent and maintain its consistency over the operating temperature range from  $-20^{\circ}$  to  $160^{\circ}\text{F}$ . to give the dash-pot action.

Their engineers tested many lubricants but the only one to allow satisfactory operation and still lubricate after 75,000 cycles was DC 44 Silicone Grease. It maintains the right consistency to give smooth action and permanent lubrication. Even in thin films this silicone grease does not run out or form gum.

We recommend DC 44 Silicone Grease for permanently lubricated anti-friction bearings, and for high temperature applications up to  $350^{\circ}\text{F}$ . DC 41 Silicone Grease is recommended for temperatures up to  $450^{\circ}\text{F}$ . DC 33 Silicone Grease is both a low and a high temperature grease and is recommended for use from  $-95^{\circ}$  to  $300^{\circ}\text{F}$ .

If you want permanent lubrication or have high temperature or low temperature problems it will pay you to investigate Dow Corning Silicone lubricants. Write for data sheet X 7-5 or call our nearest sales office.

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New York • Chicago • Cleveland • Los Angeles  
Dallas • Atlanta  
In Canada: Fiberglas Canada, Ltd., Toronto  
In England: Albright and Wilson, Ltd., London



2413

**Rubber For Floor Surfaces**—What type of rubber matting to use in a given floor area, the advantages of the various types and their design and care are described and illustrated in a new catalog section put out by the B. F. Goodrich Company, Akron, Ohio.

2414

**Metallurgical Uses of Oxygen**—A 12-page reprint on "The Use of Gaseous Oxygen in Metallurgical Processes" is now available. Written by Dr. G. V. Slottman and P. M. Hulme, the article originally appeared in "Metal Progress." It describes the metallurgical uses of oxygen in steel making and places emphasis on open hearth applications. Air Reduction Sales Company, New York, N.Y.

2415

**Your Payroll Dollar**—The Research Institute of America, Inc., New York, N.Y., is publishing an analysis of human relations techniques entitled, "More For Your Payroll Dollar." Included are discussions of hiring methods, training methods, workers' supervision, and pay policies.

2416

**Lubriplate Handbook**—Lubricant recommendations for various operations, together with much valuable information on the subject of modern lubrication, is contained in a 28-page Service Handbook just issued by The Lubriplate Division of Fiske Brothers Refining Co., Newark, New Jersey.

2417

**Of Interest to Molders**—Information on Dow Corning Silicone Mold Release Agents is the subject of a new pamphlet issued by the Dow Corning Corp., Midland, Mich. These agents were introduced about four years ago and have found wide acceptance in the fields of lubricating tire molds, and curing bags, and in the lubrication of mechanical rubber goods, floor tile, and plastics.

2418

**OK on Delivery**—A new booklet issued by the Shipping Containers Institute, New York, is part of an educational program intended to reveal to box-makers, shippers and carriers the corrective action they can take to reduce damage of goods in transit. This booklet lists the principal damage causes that shippers are in the best position to correct and explains how to do so.

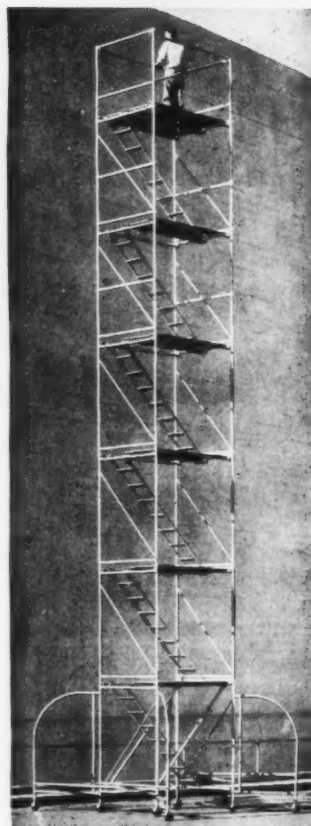
2419

**Kennametal Catalog**—A new 68-page catalog No. 48, covering Kennamatic and Kendex Tools, Planer Tools, Roll-Turning Tools, Axial Face Kennamill—the entire line of cemented carbide tools. Other features are information on screwed-on pulley grooving tools, piston grooving blades, feed finger pads, bushings and diversified suggestions for wear-resistant application of Kennametal. Kennametal, Inc., Latrobe, Pennsylvania.

2420

**Centralized Lubrication**—Detailed explanation of the Farval Centralized Lubrication System is the subject of a new bulletin issued by the Farval Corporation, Cleveland, Ohio. The bulletin carries case histories of the savings effected through application of their mechanical pressure system for delivery of oil or grease to bearings. Lubrication is delivered to a group of bearings from a central station, controlled by a positive piston displacement valve having only two moving parts and a tell-tale indicator for each bearing. In addition to the Studies, Farval's Bulletin No. 25 carries full information about the system.

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SET UP A 45 FOOT  
SCAFFOLD IN ONLY  
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Yours! . . . this sensational cost-cutting scaffold advancement. A 7-foot, single section unit requires only 1 minute to erect; a 45-foot multiple unit only 15 minutes. Rolled easily from position to position throughout the job. Stronger than structural steel yet one-third the weight. Safety-tread stairway completely within the structure. No wrenches, wing nuts, bolts, loose parts. Each section folds flat.

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BERKELEY, CALIFORNIA

Offices in All Principal Cities

## ADVERTISING VITAL PART OF MARKETING PLAN

(Continued from page 54)

lection of a media list was comparatively simple. The market analysis showed in detail what companies could be potential customers for each type of product. It indicated the trends to and away from several products in the line, as well as the approximate total demand. Changes in the old media list were evident, as well as the need for different degrees of emphasis on varying copy themes.

If the market picture is clear, it shows who and where customers and prospects are, and indicates the sales arguments that will convince them. From that point, the selection of media and the preparation of copy can be based on sound foundations.

Certainly, such a procedure is elementary. The idea that advertising and sales promotion should be based on marketing planning is one of the most elementary in the business. But it takes the wasted money of poorly merchandised programs, misdirected copy, or unproductive media to make that basic principle evident. Let your agency play its part in marketing planning—make it a marketing and merchandising counsel as well as a copywriter and space buyer. A sound advertising program, integrated into a sound marketing plan, can't come any other way.



• Largest Douglas fir "peeler" log received in years by the Oregon-Washington Plywood Co. is seen being measured by Al van Eyke, foreman. The giant peeler, nine feet in diameter and 34 feet in length, will be peeled into veneer for 24,000 square feet of Douglas fir plywood. Production of Douglas fir plywood has increased from 950,000 square feet in 1939 to 1,600,000 in 1947, according to figures of the 12th District, Federal Reserve Bank.

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**SEATTLE, WASHINGTON**

# Packaging Experts to Display Best Methods

**T**HE first Western Conference on Packaging, Packing and Shipping will be held concurrently with the first Western Packaging Exposition in the San Francisco Civic Auditorium, August 10-13. More than 100 companies will participate in the exhibits of machinery, equipment, materials and services.

Exhibits will be open through August 13, while the conference will be held on August 11 and 12. The conference program is as follows:

## Tuesday Afternoon, August 10

Chairman: H. C. Diehl, Director and Secretary, The Refrigeration Research Foundation, Inc., Berkeley, California.

Introductory Remarks—Dr. William Rabak, program chairman, Western Regional Research Laboratory, U. S. Department of Agriculture, Albany, California.

"The Western Packaging Exposition and Conference"—H. C. Diehl.

Address of Welcome—Mayor Elmer E. Robinson.

"Is the West Holding Its Industrial Gains?"—J. Lester Perry, president Columbia Steel Co.

## Wednesday Morning, August 11

Chairman: E. M. Burns, secretary, Northwest Frozen Foods Ass'n.

"What Is Good Package Design?"—Leonard

Arthur Wheeler, package and product engineer, Los Angeles.

"The Consumer Looks at the Package"—Dr. Vera Greaves Mrak, College of Agriculture, University of California, Berkeley.

"Can a Package Be a Salesman?"—Arthur C. Farlow, vice-president and Pacific Coast manager, J. Walter Thompson Co., San Francisco.

## Wednesday Afternoon, August 11

Chairman: Dr. E. M. Mrak, chairman of the Division of Food Technology, College of Agriculture, University of California, Berkeley.

"Characteristics of New Packaging Materials"—Robert deS. Couch, head of packaging research, General Foods Corp. Central Laboratories, Hoboken, N. J.

"Functional Values of Unit Packages"—Dr. T. A. Schwarz, chief chemist, California Prune and Apricot Growers Ass'n, San Jose.

"Pre-Packaging From the Grower's and Shipper's Viewpoint"—E. M. Seifert, Jr., Holme and Seifert, Salinas.

## Thursday Morning, August 12

Chairman: J. W. Pipes, president, Mission Dry Corporation, Los Angeles.

"Getting the Most Out of Packaging Machines"—John A. Warren, packaging consultant, American Home Products Corp., New York.

"Transportation, Freight Claims and Damage"—W. W. Hale, vice-president, freight traffic, Southern Pacific Co., San Francisco.

"The Responsibility of the Shipper to Pro-

vide Adequate Containers"—Irving Lyons, traffic manager, California Packing Corporation, San Francisco.

## Thursday Afternoon, August 12

G. W. Aljian, director of purchasing and packaging, California & Hawaiian Sugar Refining Corp., Ltd., Crockett, California.

"The Outlook in Packaging Costs"—Harold R. Morrison, purchasing agent, Union Oil Company, San Francisco.

"Packaging Specifications"—T. J. Nelson, packaging engineer, technical department, California & Hawaiian Sugar Refining Corp., Ltd., Crockett, California.

"Materials Handling Technique for Cost Reduction"—Paul M. Hunt, Owens-Illinois Glass Company, Package Research Division, San Francisco.

## Furniture Industry Grows

Furniture manufacturing establishments in the Los Angeles metropolitan area increased the footage of space used 16.1 per cent in 1947 over 1946, according to a survey by Edward S. Feldman for the Furniture Manufacturers Association, Inc. His projection of replies to a questionnaire gives 9,516,883 square feet for 360 plants in 1946, and 11,192,061 for the same 369 plants in 1947.

## ALL-STEEL BELT CONVEYOR

(MOTOR DRIVEN)

IT'S NEW! This all-steel conveyor belt, built on an entirely new principle, is establishing a new trend in the conveying system field.

LENGTHS — 10 FEET TO 200 FEET  
WIDTHS — 6 INCHES TO 48 INCHES



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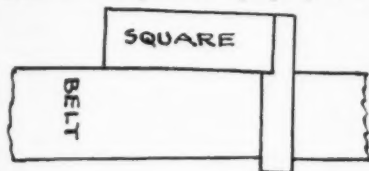
# MECHANICAL KINKS

By W. F. SCHAPHORST, M.E.  
Former Engineering Instructor  
New Mexico State College

## Belt Joint

**B**EFORE making any belt joint it is usually a good plan first to examine carefully the joints already in the belt as made by its manufacturer. Then make your joint as nearly like the manufacturer's joint as possible. By so doing you can be pretty sure that you will make as good a joint as can be made. This applies to all kinds of belts that are at all spliceable by mechanics.

Then, when cutting the belt, the first rule, and a very important one, is to cut the belt square—at absolute right angles with the outer edges. Always use a square, as indicated in the accompanying sketch. Do the cutting while the square is in position. Do not attempt to do this most important job with the eye alone. Many valuable belts are ruined annually because this seemingly trivial point is ignored. Its importance can hardly be over-emphasized. Be sure that the operation is properly done.



Every reader knows how easy it is to tear an ordinary sheet or writing paper with one's hands by applying the force to one edge. But when force is distributed over the entire sheet human strength is seldom great enough to pull the sheet apart. The same applies to belts. Unless cut perfectly square, one edge of the belt will be under greater tension than other parts of the belt and the fasteners may pull out. Fabric belts are apt to split down the middle. The belt will also run from side to side on the pulleys and may run off frequently. All of this trouble is often due to the "trivial" fact that the belt was not cut square.

## Steam Meters Save

While writing this I have before me a report regarding the installation of 16 steam meters in a large plant in which it is claimed that the meters pay for themselves annually by salvaging exhaust steam and by effecting other economies.

The company manufactures paper and has a daily production of 135 tons of high grade product. Their power cost runs into several thousands of dollars per day, being from 40 to 47 per cent of the total production cost. Therefore, as the report states, "the generation and use of steam are entitled to almost as much study as all of the other plant operations put together."

An average of 100 tons of coal screenings per day is consumed by the power plant and six car loads of "hog feed" or wood chips from the saw mill. Eleven flow meters were first installed and now they have 16 in operation. There are 11 on the boilers, one on the distribution line to the digester, one on the line to the large engine, one on the line to the bleaching plant, and

one each on the 10-inch and 8-inch lines supplying several machines.

To this writer the most interesting statement in the report is this: "A study made possible by our meters determined that exhaust steam from our 1000 kva. engine could be used on our bleaching machines in the place of live steam. On this item alone we saved in one year more than \$6,000 which repaid the entire cost of our meters."

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Special or regular rivets can be quickly produced in our plant. Our cold heading equipment enables us to manufacture rapidly, at low cost, all types of rivets and cold headed specialties in all types of metals.

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WHETHER it's garden-fresh peas, kitchen stoves, or asphalt highways by the barrel—Cabco containers protect. They are job-engineered for the task at hand, lightweight for shipping economy, strong for maximum protection. Cabco containers are easy to handle, convenient to store. They are made by the West's oldest, foremost manufacturer of wooden containers.

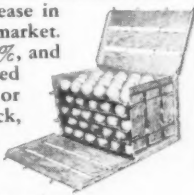
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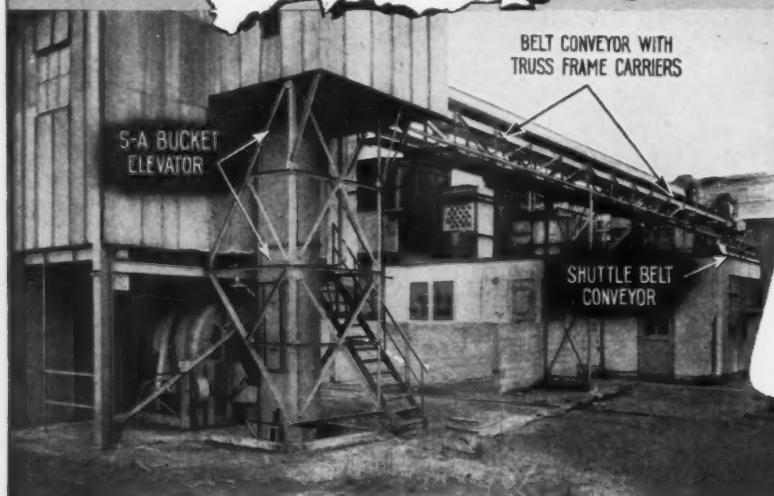
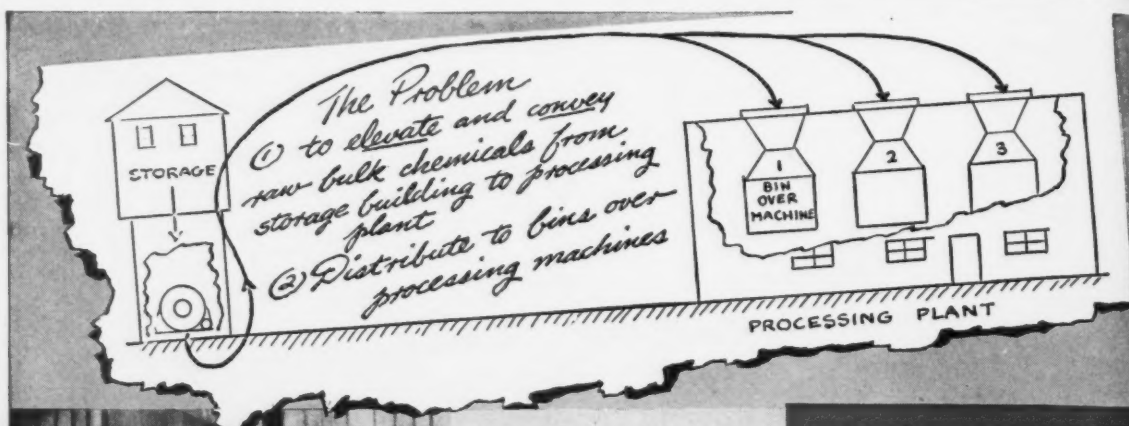
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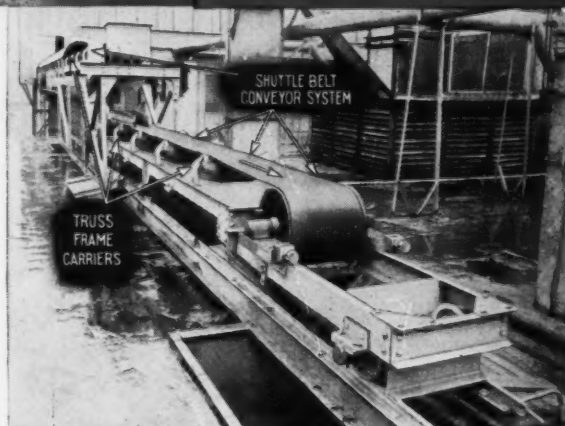
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**S-A**  
*Has the Practical*  
**Answer**

Triple play combination, left to right—Bucket Elevator up to Stationary Belt Conveyor, over to Shuttle Belt Conveyor, and thru roof hatches to processing machines.

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The comparatively short Shuttle Belt Conveyor has been rolled to one side of feed point, one end spotted over hatch at right, and carrying belt operated toward that end. Hatch covers removed to show receiving hoppers.



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